

A small pot of gold but no promises

There has been some acclaim for the Treasury in the last week over its cleverness in not allocating all of the cash involved in a projected 2 per cent annual rise in public spending. There is admiration for a stratagem which should make it easier for the Government to hold down public spending if the 3 per cent growth rate they hope for does not materialize. People (including Cabinet ministers) social less at losing money they never had than at losing money they have already been allocated. There is admiration, too, of a rather more cynical kind at the way the contingency fund can be made to appear as a pot of gold at the end of everybody's rainbow. It is an invitation to optimism, special pleading and tough anti-fighting by all spending departments.

Optimism that education would come out of the fighting well, over, for example, education maintenance allowances, cannot, however, be well grounded. If public rhetoric is a reliable guide, industrial investment projects must top the Government's list of priorities.

Other features of the White Paper suggest the Government has an underlying intention to favour expansion in the labour intensive public services to counteract the structural unemployment. Such expansion has been allowed in most in current spending rather than capital programme.

This has to be read in conjunction with doubts about understanding of education—that in spending less than the plans allow. Such evidence as exists for this understanding is set out on page 1. The rate support grant circular has thrown more light on the subject, but where the year is concerned the figures can only be estimates of the more tentative kind. There is, for example, no knowing how

news of current understanding may affect authorities' behaviour between now and March 31. This might be particularly unpredictable because understanding has become a little unfashionable recently. The OECD in their last quarterly economic outlook for member countries dismissed its depressing economic effects. Notes from Whitehall suggest that the name worry is shared by at least some people there.

This is not just an obscure economic argument. It could mean more jobs for teachers. And the spring offensive on the pay front is beginning. There really cannot be much point in teachers kidding themselves they can get more than a 10 per cent rise. But if local authorities are understanding and the Treasury is not too happy with either, then the current expenditure rather than the budget is the approved way of using up slack. There could be scope for negotiation over other parts of some sort of package.

Unfortunately, many of the things which the teachers' organizations might like to include in such a package—conditions of service, pupil teacher ratios, resources for use in schools, in-service training—do not fall within Burnham's scope. Perhaps they should, but for this year anyway they do not.

Scale posts, however, do fall within Burnham's terms of reference. Decline in numbers is producing grave difficulties in terms of provision for teachers and balanced staffing for schools with falling rolls. One of the reasons behind the eminently sensible arguments for planned reductions which Peter Newsam sets out on this page, is that declining numbers mean less pay. If scale points were unlinked from class of entry, both provision and scaling down schools would be easier.

Black, white and grey

With ILEA television's *Somebody's Daughter* (page 4) we're right back to the basics again—sex 'n' race 'n' violence (the latter no doubt to be supplied by the Young National Front, who have threatened to picket schools showing the programme) and their opponents. ILEA TV is so close to being so praised (or blamed) they have presented sensitive social topics in a convincing complex and naturalistic way, and done this with a soap opera that is pretty compulsive viewing.

It is almost impossible not to have a sneaking sympathy for the London heads who said to now-papers and on television this week that it's all too controversial, and their schools will keep out of it. The trouble is that, whatever they do, the schools are already in the thick of it.

Extremist groups are trying to distribute racist propaganda in schools. Adolescents are surrounded by either propaganda on the subject of race. Schools are not prepared. And when local political groups—not just extremist ones—are trying to make schools an arena for political fights and action, avoiding the issues is no guarantee of avoiding trouble.

Since those far-off days when Mr Lawrence Stenhouse tried to invent teaching styles to tackle controversy and central questions in his *Curriculum*, Curriculum Project plenty of experience has grown up in some secondary schools. *Somebody's Daughter* seems to be one result of that experience.

It provides a pretty specific focus for debate—needed, if pupils are to begin explicitly to consider and prejudice to prejudice and racial issues. Apart from a general predisposition to accept

race couples, it shows no moral bias—views expressed on urbanism, for instance, are conflicting and ambiguous. (The idea of the neutral teacher may have died the death—but ambiguous teaching materials seem essential for topics which cause raging controversy in the ordinary world.)

Of course, any such material has to be used carefully and professionally, as part of a thought-out course—but that is true of any now teaching material. Of course, it may be used badly or lazily—but that is the risk of all teaching and many people will think that in this case ILEA TV have done their part by producing an excellent film.

And, of course, if parents are not carefully prepared, schools may hit trouble using such materials. But if relations with parents are so bad that a school cannot handle genuine parental anxiety over the way they tackle these sensitive topics, they are in trouble anyway.

The trouble is that people expect the schools to be courageous in handling contemporary issues but are quick to criticize them when they do. And the polarization which is now taking place on this matter cannot help. For some, it is enough that the Newcom Front has attacked this film to convince them of its merits; for others (and they, too, may have a point) the row which has now taken place has changed the quality of the film and added to its overtones—it did not originally possess.

At all events, it must serve to underline the importance of fitting discussion of controversial issues into a larger scheme of teaching about the society in which young people are now growing up. It would be a pity if some controversial issues were quite outside the school curriculum.

To plan or not to plan...

Peter Newsam discusses the effect of falling rolls

As secondary school numbers are seen to be likely to fall sharply in most parts of the country over the next few years, a three-part argument appears to be gathering force. It goes like this:

1. Falling numbers mean that schools should close because that saves money.
2. The quickest way to achieve these closures, because L.E.A.s are so soft in these matters, is to allow market forces to rule; that is, to allow parental choice to close the (unpopular) schools and sustain the good.
3. Apart from being quicker, this method will have the added advantage, because it is grounded in parental choice, of pleasing parents.

I am not here concerned in debate the debatable first part of the argument. But on I am sure that unplanned or market-force closures (points 2 and 3) will be infinitely more damaging educationally, more unpopular and no quicker than planned ones. I would like to explain why.

Consider the following illustration of market forces at play with four schools. Their entry in 11 is assumed to fall from 24 forms of entry to 12 over ten years. For the first four years the fall is of two forms entries a year; for the next six years at one form entry a year. D, it will be seen, is in disfavour:

Form entry at 11 plus	A	B	C	D	Total form entry
Year 1	6	6	6	6	24
Year 2	6	6	6	4	22
Year 3	6	6	6	2	20
Year 4	6	6	6	0	18

At the start of year four, school D is in the following state, assuming entries before year one had been at six form entry:

Age groups	School D	Total form entry
11 plus	2	2
12 plus	4	4
13 plus	4	4
14 plus	4	4
15 plus	4	4
16 plus	4	4
17 plus	4	4

From the start of year three, when the entry falls to two forms, the school will require extra and increasing help if the curriculum at the top of the school is to be maintained. Yet it cannot close down materials from essential for topics which cause raging controversy in the ordinary world.

Of course, any such material has to be used carefully and professionally, as part of a thought-out course—but that is true of any now teaching material. Of course, it may be used badly or lazily—but that is the risk of all teaching and many people will think that in this case ILEA TV have done their part by producing an excellent film.

And, of course, if parents are not carefully prepared, schools may hit trouble using such materials. But if relations with parents are so bad that a school cannot handle genuine parental anxiety over the way they tackle these sensitive topics, they are in trouble anyway.

The trouble is that people expect the schools to be courageous in handling contemporary issues but are quick to criticize them when they do. And the polarization which is now taking place on this matter cannot help. For some, it is enough that the Newcom Front has attacked this film to convince them of its merits; for others (and they, too, may have a point) the row which has now taken place has changed the quality of the film and added to its overtones—it did not originally possess.

At all events, it must serve to underline the importance of fitting discussion of controversial issues into a larger scheme of teaching about the society in which young people are now growing up. It would be a pity if some controversial issues were quite outside the school curriculum.

D close? Let us assume that, with the collapse of school D, school C moves to the bottom of the pecking order. Year five entries might then look like this:

Form entry at 11 plus	A	B	C	D	Total form entry
Year 5	6	6	5	1	18
Year 6	6	6	4	1	17
Year 7	6	6	3	1	16
Year 8	6	6	2	1	15
Year 9	6	6	1	1	14
Year 10	6	6	0	1	13

At the beginning of year seven, excluding sixth-formers who will have to squeeze in somewhere, there will be one form in school D and room for them in school C. Give or take a little local difficulty about moving pupils who year before public examinations, it would theoretically be possible to move the ramp of school D into school C at the start of year seven. Market forces and parental preference look a little bit at this stage. Suppose school C is on the far side of town? It is in their children's interest to transfer to a falling institution (unpopular pupils had it will be recalled) is, if the market is to be a measure of value, simply dishonest.

As market forces are supposed to have everything to do with unmet preference-exercising parents it is worth exploring the freedom so far enjoyed by parents of children at school D. Let us assume they were free not to send their children there in the first year. So far, so good. Thereafter, they have not been free to stop the school sinking under them nor have they been free to move their children elsewhere while it does. Elsewhere is full up.

So market forces will close school D by the start of year seven. But will they? In year one to four of the entry something may happen to disturb the even tenor of school D's collapse. In year four, for example, school A might commit some educational folly, like affording a local newspaper, and become altogether bad (unpopular). Entries in year four might then be:

Year 4	A	B	C	D	Total form entry
Year 4	3	6	6	3	18

That would upset things rather. But to sum up, market forces might close school D at the earliest by the start of year seven and quite possibly later. Either way, the L.E.A. would be left with an unpleasant and increasing help if the curriculum at the top of the school is to be maintained. Yet it cannot close down materials from essential for topics which cause raging controversy in the ordinary world.

Letter to the Editor

Unpublicised plight of the shires

Sir, I write to support the chairman of Kent County Council's Education Committee for his powerful attack on the media in general for its failure to alert the public to the third round of massive cuts being inflicted on shire counties. This is not something on which we are united and, as he is well aware, I am using all my efforts to gain an increase in the rate support grant settlement as part of the county's endeavours to improve standards in an authority, which is the largest in the country, which is near the bottom of any league table you care to use. It is as well to remember, however, that rate support grant is only part of the resources available to local government and that both the proportion of expenditure on which the grant is based and the manner in which it is distributed is not determined by statutory rule or by other standard formal criteria; the decisions in the Conservative Council coupled with variable factors in the needs of the county ensure that the final decision is an arbitrary choice made by the Government to achieve certain ends. The other part is the actual rate levied by the individual local authority. This is where "the good

dies" and "the boddlers" will separate themselves out. Many of us have sworn in the litres of crocodile tears except by our country councillors on they pleaded with us to support them by accepting cuts or not opposing them. Not only were we to consider the state of the economy but what was evidently worse, the decision of the Government to impose rigid cash limits which successfully prevented our newly elected county councillors from providing the men and materials so badly needed in our schools. They accepted that a penny rate would solve many of the problems, but as loyal patriots their hands were tied. Mr Barnes chided you for your leader "Six of a slightly different kind" (November 25). I should like to know, indeed I will go further: why no mention of the abolition of the rigid cash limit? Peter Shore's statement of November 18 mentions this additional grant made to shire areas should not be used simply to hold their rates down. He also said: "...last year we had to look for cuts in total expenditure; this year we do not". Possibly the most significant

Fig. 4
Form entry at 11 plus

Year	A	B	C	D	Total form entry
Year 1	6	6	6	6	24
Year 2	6	6	6	4	22
Year 3	6	6	6	2	20
Year 4	6	6	6	0	18

This exact pattern would depend on the quality and location of the schools and a variety of other factors. The closure of school D could be decided in year four and take effect by the start of year seven, as in the market forces example.

So what is the difference? For things at least. First, during the year seven, none of the schools would have had to face a grepping decline from one year to the next. Second, in this example, school D would be the one to which school B pupils transfer. School B would have been chosen after consultation with them, as the most acceptable educationally or because of its location, to school D parents.

Third, at the end of year six, those entering school D's last form and first year sixth would be able to move to school B, one year before their own school closed. In space which had been planned for them, this would enable these young groups to begin uninterrupted two-year courses. Finally, planned arrangements could be discussed at all stages with parents, teachers and children. Parents made to them could be kept. This is the difference.

So plan and keep promises. L.E.A.s need to be able to do this and make public the operating policy of each of their schools in advance. That needs legislation. That in turn needs time. Apparently, there is not any.

I believe it was on this that the orchestra played on with the boot went down. We have seen a year asking each other what the school is supposed to be (the curriculum) and there has been a horse-play about who is to hold the baton (the curriculum). But if we can see ourselves away from the archery, for a moment, what of the school passengers and crew?

In the next few years, hundreds of teachers and thousands of children in primary as well as secondary schools of my experience are going to find themselves lost during helplessly unless L.E.A.s given the legislative means to support them.

This ought to be worth a few hours of someone's time. Peter Newsam is education officer of the ILEA. He writes in a personal capacity.

Lib-Lab spur to action on jobless

by Stephen Cohen

On the eve of the Liberal Party's special conference in discussion the future of the Lib-Lab pact, Mr Alan Bell, Liberal spokesman on education, said this week that he was not entirely satisfied with the Government's action on reducing teacher unemployment. Part of the agreement between the Liberals and the Labour Government included a pledge from the Prime Minister, Mr Callaghan, that an urgent investigation would be started to find short-term measures to cut unemployment.

Mr Bell said this week that road maps in the Department of Education were blocking any moves. Ideally he would like to see local authorities with high rates of teacher unemployment setting up projects along the lines of Liverpool's experiment in "hole schools" where jobless teachers taught jobless pupils.

Fifteen unemployed teachers were taken in the city with their wages paid by the Training Services Agency under the job creation programme. The young people were allowed to work in drawing school security benefit.

"I would have liked to have seen more use made of the job creation programme to put unemployed teachers into temporary posts," Mr Bell said. That way they could obtain qualified teacher status by completing a probationary year.

But technical problems were raised by the D.E.S. Bureaucratic obstacles have prevented short-term schemes from coming into operation. I would like them to say through the red tape. If they were absolutely determined to find a way they could have done it."

But Mr Bell was full of praise for the extra 7,600 teaching jobs created by Mrs Shirley Williams, Education Secretary, when she announced education's allocation of the rate support grant last year. This was a "major improvement," he said.

He added that the Liberal Party was in agreement with Mrs Williams over the reform of school managers and governors. "We are sure that this was put in to the Prime Minister's speech during the debate on the Queen's speech," he said. Mr Callaghan said at the time that legislation would be introduced to reform the managerial system when Parliamentary time could be found. "Unfortunately," said Mr Bell, "we don't see much chance of that happening now."

'Secret streaming' in open-plan infant classes

Open-plan schools promote "hidden streaming" according to the education magazine *Forum*.

Miss Annabelle Dixon, deputy head of Chalk Dell Infant School, Dorsetshire, and one of the editors of *Forum*, writes that many infants schools still maintain a system of grouping based on ability, usually reading ability. Streaming still exists in these schools she says, though teachers were more likely to describe it by the less evocative term, "grouping".

Miss Dixon says open plan schools, whatever their original intention, seem to be retrograde in this particular where it was decided that one teacher should have overall responsibility for the teaching of each subject area. This meant they were responsible for teaching mixed or reading to groups of 70 or more children, and resulted in grouping of the children according to pre-selected criteria.

"With the regression to subject teachers for children of infant age must go the abandonment of integrated learning and the stress on the importance of knowledge and providing for the whole child."

Teachers took elaborate steps to avoid having to justify themselves, Miss Dixon explains. *Forum* Vol 20 No 2 price 85p, 11 Beacon Street, Litchfield WS13 7AA.



Mrs Williams samples lunch at a Coventry school she visited last week.

Still chewing the fat over meals prices

No decision has yet been taken to increase the price of school meals. Mrs Margaret Jackson, Under-Secretary for Education, in the Commons this week. And she dismissed as speculative press reports about the size of any possible increase. But she confirmed that it was the Government's intention to reduce the school meals subsidy.

Earlier in the week Mrs Shirley Williams, the Education Secretary, refused to detail allegations made in November by Mr Frank Field of the Child Poverty Action Group

that nine local authorities discriminated against children receiving free school meals. But Mr Field replied that Mrs Williams's evidence came from officials, while theirs came from parents and children.

Commenting later, he agreed with Mrs Williams that complete monopoly of free dinner children was virtually impossible because pupils talked easily among themselves about getting free meals. "Perhaps they do at school but it's at home that the subject has become unmentionable," he said.

"It's taken the place of sex as the taboo subject."

Mr Field called in his letter for more guidance from the Education Secretary on how schools could organize the recording of free school meals.

"The CPAG would themselves be publishing suggested ways of avoiding the stigma of free meals in about a month's time," he said. He estimated that 630,000 children were entitled to free meals were not getting them because the DES had failed to publicize the concession.

"We should give them a platform and see that their children have the chance to choose good schools for their children when they reach school age."

Mr Devlin said more and more women were going out to work as secretaries, nurses and teachers to pay for their children's fees at independent schools. He added that the new campaign by ILEA was coming from a "position of strength, not weakness." The number of pupils in independent schools had increased by 2,500 since 1974, although the number of boarders was declining.

Public schools out to shake off snob image

A national campaign to "open up the independent schools" was launched on Monday by the Independent Schools Information Service (ISIS).

Mr Tim Devlin, director of ISIS, said the purpose of the campaign was to prove that independent schools "are not snobs." ISIS represents about two thirds of the country's independent schools and Mr Devlin said they wanted to make a new bid to get rid of their image as "the bastion of privilege."

The campaign, which opened with an "Isis week" yesterday in various parts of the country, is aimed at encouraging and making it easier for parents to send their children to fee-paying schools. The 45 schools taking part in the week will be opening their doors to the public all next week. Today sees the official launching of the Isis Association for the Friends of Independent Education which is to campaign for tax concessions for fee-paying parents, means-tested grant aid and boarding bursaries.

Mr Devlin said: "The time has come for parents and other members of the public to stop just beating about freedom of choice in education, but to stand up and show that they support it and wish to see it extended."

"We should give them a platform and see that their children have the chance to choose good schools for their children when they reach school age."

Mr Devlin said more and more women were going out to work as secretaries, nurses and teachers to pay for their children's fees at independent schools. He added that the new campaign by ILEA was coming from a "position of strength, not weakness." The number of pupils in independent schools had increased by 2,500 since 1974, although the number of boarders was declining.

OU grants campaign

The Open University Students' Association is to campaign for non-datory grants for its members. Since fees went up this year the cost of a full degree course including books and travel is about £1,500.

An English Examination Course

USING ENGLISH

Richard M. Adams, John L. Foster, Robert L. Wilson

The first major publication of 1978 from Macmillan Education

Using English develops students' understanding of the specific uses of language in a form directly related to exam requirements. It serves as an ideal text for English Language O level candidates and first year sixth form students. Using English contains 8 graded units, based on passages from diverse sources: literature, newspapers, guidebooks, travel brochures and advertisements. Contrasting passages serve as the basis for numerous comprehension tests and writing exercises to highlight and practise different uses of language. Fully illustrated with black and white photographs. 0 33 23248 8 £1.85

For inspection copy, fill in this coupon and send it to:

Pauline Price, Publicity Department, Macmillan Education, Houndmills, Basingstoke, Hants. RG21 2XS

Inspection Copy of Using English 0 33 23248 8

name _____
school _____
address _____

MACMILLAN EDUCATION

More letters, pages 14, 15

SPECIAL ANNOUNCEMENTS

UNILATERAL APPOINTMENTS 1978-79

AUSTRIA, BAVARIA, DENMARK

Teachers will be required to teach English language and literature at secondary level. Preference is given to applicants qualified to teach Modern Languages, English or English as a Foreign Language. Applications from teachers of other subjects with relevant experience will be considered. Salary is received from the foreign authority.

AUSTRIA

Applicants must be native speakers of English. They should be fully qualified secondary teachers with at least five years' experience. Minimum age 24. Fluency in the German language essential. Salary: AS 12,365 per month. Appointments are in all types of secondary school.

BAVARIA

Applicants must be native speakers of English, holding a degree and teaching certificate with at least two years' secondary teaching experience. Minimum age 24. Fluency in the German language essential. Salary: on German scale BAT III, OM 2,220-DM 2,643 approximately per month. Appointments are in Gymnasien.

DENMARK

Applicants must be fully qualified teachers with at least two years' experience teaching in the 11-17 age range. They should be single, aged between 25-35. Knowledge of Danish language not required. Salary: Dkr 73,328-Dkr 82,820 per annum. Appointments are to a school district; teachers will serve in a number of Folkeskolen in the district. Full details and application forms (please specify country of interest) available from:

Teacher and School Exchange Department (UA/ABD)

THE CENTRAL BUREAU FOR EDUCATIONAL VISITS AND EXCHANGES

England and Wales:
43 Dorset Street,
London W1H 3FN
Tel: 01-498 5101

Scotland:
3 Bruntsfield Crescent,
Edinburgh EH10 4HD
Tel: 031-447 8024

Northern Ireland:
Rathgael House,
Balloo Road,
Bangor, Co. Down
Tel: 0247 65311

Department of Education and Science
Scottish Education Department
Department of Education for Northern Ireland

MODERN LANGUAGES RELATED STUDIES

An exciting opportunity for teachers/lecturers currently serving in British secondary/tertiary establishments to exchange their post for a year or a term with a colleague in

FRANCE GERMANY SPAIN

Benefits of this official in-service training scheme include:
• Secondment on full UK salary with all pension and social security rights safeguarded.
• Incremental credit.
• Cost of living grants:

FRANCE:	Year £1,020	Term £607
GERMANY:	Year £1,696	Term £855
SPAIN:	Grant of £123	

• Dependents' grants for full year exchanges (France and Germany).
• Return second-class travel for exchange teacher (financial assistance to make preliminary visit) (France and Germany).
• Induction Course. Teachers' pack.

Your pupils/students will have the advantage of being taught by a native speaker while you are away. You will have the chance to renew your fluency in the language you teach and update your knowledge of the country. Your post is secure in your absence. Full details and application forms (please specify country) available from:

Teacher and School Exchange Department (rel: Eur/X/Ed).

The Central Bureau for Educational Visits and Exchanges

England and Wales: 43 Dorset Street, London W1H 3FN. Tel: 01-498 5101. Department of Education and Science.
Scotland: 3 Bruntsfield Crescent, Edinburgh EH10 4HD. Tel: 031-447 8024. Scottish Education Department.

Northern Ireland: Rathgael House, Balloo Road, Bangor, Co. Down. Tel: 0247 65311. Department of Education for Northern Ireland.

PROFILE

Dudley Fiske: cool clout of a chief among chiefs

Dudley Fiske, chief education officer for Manchester, who takes over the presidency of the Society of Education Officers next week, is one of the younger members of his profession to hold that office. At only 49, he has still managed to put in 10 years as Manchester's chief officer, after a meteoric career through the ranks from his first job as an administrative assistant in East Sussex via Berkshire and Leeds (where he was deputy).

He took over in Manchester in 1968, just after the Labour Party had finally pushed through a comprehensive scheme (though it took another decade to finish the job with the Roman Catholic schools) and had promptly been succeeded by the Tories.

Dame Kathleen Ollerenshaw, his first chairman, saw it as part of her job to brief him on every aspect of Manchester's self-conscious civic tradition. She ordered him to the scene personal rivalries on both sides of the political divide, which were laid out like a minefield in the path of an incoming CEO, while at the same time, impressing on him that he was expected to have broader horizons than the city limits.

You get the impression, talking to those who watched him find his touch, that Dudley Fiske was born with well-developed antennae for just such a situation. His first task was to pilot through the plans for Manchester Polytechnic and persuade an obstinate local education authority to fall in with the demand of the then Minister of State (Shirley Williams) that they should allow the polytechnic governors much more freedom than the city fathers wanted. The 30 meetings this entailed were his baptism of fire. In passing through it, he established his local credentials as well as quickly learning a good deal about Manchester's complicated chemistry and self-regard.

He also seems to have established early on a style and manner which enabled him to maintain a friendly relationship with politicians in both parties, while preserving consciously and by design a distance between himself and his office and themselves and theirs. Local councillors say they find him very reserved: it is not the impression he gives to journalists but it is clearly one way in which he has coped with the stress which faced a youthful newcomer in the hurly burly of Manchester's public life.

He is, in fact, an extremely thorough administrator who calculates every move and manages his own person with great care, as part of his job of managing a local education service. What does he do when he's not being chief education officer, you ask. Season tickets for Manchester United, the Royal Exchange Theatre and the Hallé provide the answer in terms of family interests and local culture, while at the same time underpinning admirably the image of a local public figure lighting a useful candle to the local household gods.

One of the jobs of the president of the Society of Education Officers is to project a contemporary model of educational administration. The stereotypes have been changing, as the job itself has changed. It isn't only the domain which suggests there are fewer prophets about. Who has picked up Alec Clegg's mantle? John Tomlinson? Peter Newson as he wrestles with the London Lovethen? And fewer administrative juggernauts, too. Lord Alexander has moved off the scene in unhappy circumstances. Sir Lionel Russell's magisterial presence has had, as yet, no obvious successor.

Roy Harding, the Buckinghamshire CEO who has been president of the SEO during the past year, sounded off vigorously on behalf of the education service beset by hostile pressures



within local government. But his noted conformist fervour is that of a man whose survival is hard to till, whose own rose manoeuvre is cribbed, cabined and confined by unrelenting politics and the battles of city management.

Dudley Fiske presents a cool but not cold image in the world. Manchester has experienced chief education officer to speak out and take in national policy-making (always providing did not suddenly steal the limelight from local personalities). In 1975 he raised some of a sensation with his Lady Simon of Walsingham lecture, when he laid about him in sure terms on the educational consequences of local government reorganization and the clerks, treasurers and the other local authority departmental chiefs gauged up against education. This caused an stir among Manchester's education establishment, but the Association of Municipal Authorities took fright at the headmaster for a while threatened to dump him as an agitator.

In his calculated way he has chosen his words and his occasions, with care and timing, for the effect both nationally and locally. He had, for example, already moved a long way to bring the question of shrinking schools and parental choice at the secondary stage up to local agencies before using a paper to the DES conference on comprehensive schools. York, to highlight it nationally (and further local plans as well). Manchester's 1977 school intake filled only 195 of the city's 205 Form entry. By 1985, the estimate is that this will have dropped to no more than 130, with all the implications this must bring if schools are allowed to close or be sustained simply by the choices of parents.

At a more mundane level, he has the reputation of being open and available to his staff, delegating real responsibility and expecting a high level of performance in return. By his periodic visits and regular heads' meetings, he tries to maintain a personal contact throughout the school system, without kidding himself anybody else that he can do the job for Manchester. He maintains a staff of inspectors. As he moves into the SEO slot, expect to see works, but on articulated presentation of the professional educational administrator's view, a on irresistible urge to be on the side of the school and good sense for as much as the time possible.

Stuart Mack

Bilingual science

The European Commission in Brussels is to give the University of Sussex £2,350 to encourage a scheme for producing scientists fluent in French or German.

The university started four-year degree courses this year in which students get instruction in languages as well as physics or chemistry. They also spend one of the four years at a French or German university.

SPECIAL ANNOUNCEMENTS

Make it Count

Basic numeracy Workbook £1.50 + 42p p & p.
Puzzles, 55p + 18p p & p. Game £1.25 + 25p p & p.
Tutor's Manual 75p, Tutor Training Kit £1.

NATIONAL EXTENSION COLLEGE
Dept 14, 131 Hills Road, Cambridge CB2 1PD

Maths and science 'should have quarter share of curriculum'

by Bob Doe

Science and maths should constitute at least a quarter of the secondary school curriculum, and some physics should be taught in all pupils, the physicist's professional body has told the Department of Education and Science.

A report from the education committee of the Institute of Physics says: "The institute believes that every child should come into contact with some physics during his or her compulsory school life because physics remains the foundation of science and technology."

They are against the idea of integrated or combined science courses for all after the first two years of secondary schooling. "We think it imperative that opportunity be provided at this stage for separate subject study of the sciences."

"We believe there is a general agreement that there ought to be an irreducible minimum of science at secondary school even for the least able," says the report. There should be a core syllabus for all, though treatment of topics in it would not be the same for all abilities. This should be supplemented by additional work and options.

The quarter of the timetable set aside for mathematics and science was a minimum that all should get. There was a major interest in

science should spend more than a quarter of their time in these subjects, in years four and five. Of mixed ability grouping for mathematics and science the report says: "There is strong support in the institute for the streamed situation, but we realize that this represents the view of those who have been successful under such a scheme."

There were competent and conscientious teachers dedicated to mixed ability teaching, but generally it should be used only with great caution. It was particularly difficult to operate in structured subjects like maths and science and should not be imposed on teachers from above.

The report calls for a rigorous, systematic and complete evaluation of mixed ability working.

This report was prepared before the Government's Green Paper on education was published and in response to the discussion document *Education: our children's choice* by the DES last year. Professor O. S. Havens, the institute's vice-president for education, said he was confident there would have been no significant differences in the report if it had been written after the green paper, which he called "a gem of a gem, a gem of a gem, a gem of a gem."

Brighter job prospects for next batch of graduates

by Bert Lodge

Though more graduates will be leaving universities this summer than last, their chances of getting jobs are brighter than for the past three years. There are more—and better—opportunities in commerce and industry than in the public sector, and more of them are open to non-technical graduates.

The Standing Conference of Employers of Graduates says the demand for graduates this year will be 20 per cent up on last year, when the demand was only 4 per cent above that for 1976.

It predicts that the 38,000 first degree and 7,000 higher degree holders will find the biggest opportunities in manufacturing industries. These have not only increased their demand for the second year running by about 30 per cent, but are now offering starting salaries above the average of other employers.

This confirms the swing away from the public sector, which when jobs in the public sector were paying more to new graduates.

The overall increase in jobs in commerce is from 10 to 15 per cent. Despite cuts in public expenditure, opportunities in local government, the civil service and public utilities have not dropped to the degree predicted last year.

"As the year moved on," says the organization's report, "Civil Service recruitment picked up, partly reflecting the need for more staff to cope with the social consequences of unemployment. There

were also signs of local authorities recruiting specialists for departments dealing with financial control and the needs of industry."

Recruitment in the public utilities has also picked up sharply while commercial employers are wanting 10 to 15 per cent more new graduates. A further increase of 15 per cent is also forecast in the demand for accountants.

The shortage of engineers is forcing firms to recruit graduates in pure science. Of the expanded opportunities for arts and humanities graduates, the organization says: "In many of these jobs as with others, personal qualities weigh heavily. Many jobs also require some degree of numeracy although not necessarily at degree level."

The survey notes that applications for teacher training places from graduates were 10 per cent down last month compared with December, 1976, indicating "a continued over-reaction to reports of teacher unemployment."

In fact, there is evidence that qualified graduates who are not in the public sector have not too much difficulty in finding secondary school posts.

Graduates disappointed in their first choice of career are advised to look at computer programming, production management, the armed services, industrial accounting, police and fire services, marketing, purchasing and selling.

Infants under investigation

The Schools Council is moving out of school-nursery school at least and considering children at home. A new £79,000 project on links between pre-school and infant school.

The project will be directed by Mr Phil Cliff of the National Foundation for Educational Research, who will mastermind a three-pronged three-year attack on education in young children's schools.

The first part was dreamed up some time ago by the Department of Education and Science in the short-lived post-White Paper days when nursery expansion was firmly on the timetable. It will study children between the ages of three and eight as they move from non-venomous nursery schooling into primary school, and move from class to class in the primaries.

The second Schools Council part

Students seek new leader

The ball-bow political group, in the National Union of Students are currently choosing their candidate for the presidential elections this spring through about by the resignation of Miss Sue Slipman.

Miss Slipman, 28, a member of the Communist Party executive, is the first woman president of the NUS. Her decision to stand down after only one year is also unprecedented. All previous presidents have served for two years. But she said this week that she had largely achieved her ambition of making the union a much more credible force in society and she thought it was time for a new leader.

Nominations for the presidency have to be in by February 3. The choice of the broad left, the Marxist coalition of Communists, Labour Party members and non-aligned socialists which dominates

the NUS executive, is expected to be Mr Trevor Phillips. If elected he would be the union's first black president.

The deputy president of the union, Mr Peter Ashby, also a member of the broad left, is ineligible for election because of the rule that candidates must have been full-time students during the 24 months preceding election.

The Federation of Conservative Students, the largest political group in the NUS with almost 20,000 members, meets on January 28 to choose its candidate. Mr David Wilks, current president, is a possible nomination.

Mr Mike Capes, organizer of the National Organization of Labour Students, said this week that they policy was not yet decided but they might support the broad Left candidate.



Trevor Phillips.

More action on housing, says NUS

Tenants renting privately owned property should be able to get grants for carrying out improvements that the landlord cannot or will not do, says the National Union of Students in its reply to the recent Green Paper on housing.

It also calls on the Government to provide further guidance on the use of land belonging to colleges and universities for the provision of

housing for students and other young people.

More students in higher education are in privately rented accommodation than in any other form of housing, the union says. Such tenants should be eligible for mandatory grants to carry out repairs where the landlord is uncooperative. But there should be no opportunity for the landlord to increase rents on change of tenancy.

It observes that at least six universities are currently negotiating with housing associations to provide accommodation for students at reduced rates and argues more encouragement towards this in the form of further guidance from the Government.

Housing for students and young people, NUS, 302 Pentonville Road, London, NW1.

COMPETITION FOR 'A' LEVEL STUDENTS

50 WINNERS WILL TOUR EUROPE

Here is a wonderful opportunity for your students to win a place on our European Tour. A trip to remember for the rest of their lives.

All they have to do is write an interesting, well thought out essay of between 1500 and 2000 words on one of the following subjects:-

1. A World without Banks.
2. A short story in which a journey, a debt, a conspiracy and fog all play a part.
3. Is it better to spend on a wanton but fulfilling youth or to save for a secure old age?

50 EUROPEAN TOURS TO BE WON

The winners of the first 50 prizes will win a place on our two week summer tour including visits to Brussels, Paris, Munich, Lucerne before flying back from Venice. Educational as well as exciting, a truly memorable and valuable two weeks.

300 CASH PRIZES

The 50 runners up will receive cash prizes of £100 each and 250 prizes of £20 will be awarded to writers of 'commended' essays. In addition, 350 book awards of £10 will be given to the schools represented by Prize-winners.

To obtain entry forms either contact your local Barclays Bank Manager or simply fill in the coupon below. (Students must have an entry form to take part.)

Competition closes 21st March 1978.

Barclays Bank European Tour Essay Competition

Name (Mr/Mrs/Miss) _____
(Please print in BLOCK CAPITALS)
School _____
School Address _____

Number of entry forms required* _____
Post to: David Waud, Barclays Bank Limited,
Room 329, 54 Lombard Street, London EC3P 3AH.

*The competition is open to all 'A' level students born between 1.8.59 and 1.8.62 inclusive, living in the U.K. Writers of the top 100 essays in both the 1976 and 1977 competitions are excluded from entry.

BARCLAYS



School
to
work

Tyneside staff to work on factory floor

Careers teachers in the north-east of England have been offered the chance to gain at least six months' experience of industry as workers at two Tyneside firms.

The firms, Brauna Glass Works, based at the Team Valley Trading Estate, south of Newcastle, and the International Paints Company of Fellings, Co Durham, says teachers would work alongside other workers.

The initiative came at a one-day conference of 380 representatives of education and industry at Newcastle Civic Centre.

Mr C. J. Abrahams, director of manufacturing at Brauna Teas, said the firm could place two or three teachers at any time. They would work as operators, but be given experience in several departments.

Last summer, Mr Jim McDowell, careers master at Eddon School High School, Gateshead, asked the firm for a job as a student operator during the six-week summer holiday. "We were over the moon with the idea," said Mr Abrahams, "and delighted with the way it worked out. We're now open to offers."

The other firm would take one teacher for a start. Mr Terry Lemmon, the managing director, said: "We have had pupils and trainee teachers on visits. Now we would like a careers teacher to join us."

"Ideally it would be for between six months and a year. After four or six months, the teacher could not only gain experience which would help his pupils, but he would be able to put something back into the firm." The teacher could also join the firm's training team and sit in as an observer on the works council.

Mr Leslie Thickfield, Parliamentary Under-Secretary of State for Industry, told the conference that education had been bypassing the needs of industry. "Between 1968 and 1975, the growth in output of first-degree graduates was nearly 32 per cent for arts and social science; 16 per cent for pure science; and only eight per cent for engineering and technology."

There should, he said, be greater involvement by trade unions in schools. Science teachers should use local industry in the classroom and welcome trade union conveyors and shop stewards, possibly as assistant in-class teachers.

Holland scheme ready for off

The Holland programme for jobless school leavers will begin country-wide next month on schedule in the start of April, and it is now becoming clear that the education service will play a much bigger part in running the scheme than it thought.

Mr Geoffrey Holland, the head of special programmes for the Manpower Services Commission, has told chief education officers that they are likely to be providing places for a large number of young people, perhaps as many as 10,000, as he has as much as three quarters of the total. Mr Holland, who was closely involved with the commission in pilot studies and discussions, said this week, however, that the weak representation given to local education authorities by the programme may still prevent them being able to contribute on this scale.

The commission itself is more cagey. Mr Holland's deputy, Mr Peter Tansley, agreed that the education service would be involved in making the arrangements or actively running projects and courses for the bulk of the participants. But he insisted there would be no question of education officials dominating the running of each area's programme, which will be in the hands

of an area board on which education has only a minority representation. The chairman of each of the 28 area boards covering the country have now all been chosen, and it is expected that the remaining members will be appointed in time for all the boards to hold meetings next month. The commission will press every board to complete a plan for activities in its area before April, even if the plan has to be modified later in the year.

The commission has also decided on the make-up of the national board which will decide policy and issue guidelines for the programme. It will be called the Special Programme Board and will have 15 members in addition to its head, Mr Richard O'Brien, who is the commission's chairman.

The most powerful groups will be the TUC and the CBI, which will have three representatives each, but local government will also have a representative each from the Association of County Councils, the Association of Metropolitan Authorities, and their Scottish equivalent, the Convention of Scottish Local Authorities; a director of education; and a principal careers officer. The local government group are likely to agree on many issues

with other members who represent the voluntary bodies and the youth organisations. The commission's director, Mr John Cusack, and Mr Holland himself will also sit as ex-officio members. All the area boards to run the programme are already agreed, although none is yet fully staffed. Careers officers and education officers are joining Mr Holland and his assistant in helping to train the new recruits to the teams, who are undergoing intensive courses.

The commission will not be open to the criticism made of earlier work experience teams that they had no women executives although they were running an activity which involved more girls than boys. One of the new area managers is a woman, and so are a number of the leaders of the teams which will coordinate the projects.

A handful of young people are already drawing their £18 a week from the Holland programme in advance of its formal opening. There are 65 youngsters on Merseyside and 20 in Bristol who are taking part in pilot schemes already in operation for the new community service scheme. They are likely to be joined by a number of other groups, including several in Coventry, in the next few weeks.

Report reveals flaws in training set-up

Vested interests and lack of coordination prevent the most effective use of Coventry's education and training resources, says the report of the steering group set up to examine the city's manpower problems. It proposes a high-powered local board to develop the services and promote liaison.

The steering group, whose other main recommendations were reported last week, consists of employer, union, and local authority interests, including the city's education director, together with senior staff of the Manpower Services Commission, who sponsored its study. It proposes that the new board should have the same type of representation.

The wider importance of the proposal is that since Coventry is being used by the commission, as one of a handful of cities for pilot projects, a local manpower board of this kind—if set up there—will likely become a model for development elsewhere.

The group's conclusions are based on what appears to be the most comprehensive analysis so far undertaken of education and training within an L.E.A. Although its surveys only the establishments—further education colleges, Government skill centres, and industrial training boards—in its own area, many of its observations will be seen as likely to apply throughout the country.

The system in Coventry, the re-

port says, has the physical capacity to support the most comprehensive education, training and retraining programme, and it is possible at short notice to augment facilities and increase the number of places. But flexibility is inhibited by organisational constraints.

The trustees exercise their influence by their choice of establishments and courses, and the staff by the courses they choose to run. Some courses are run simply because of status concerns, personal interest, and the problems that would arise in redeploying staff with redundant skills.

Salary scales for senior further education staff, it says, put a premium on the volume of teaching undertaken, and quantity may become more significant to them than relevance or the best use of resources.

Relations between the colleges and industry are critically important. In addition to formal representation by employers and unions on advisory committees, colleges encourage staff to sell their services direct to firms, often canvassing in person.

TRAINING COSTS PER HOUR
Coventry Technical College £1.32
Litchfield College of Art £1.87
The Hill College of Art £1.93
A Warwickshire College of Art £2.79
Skillcentre £1.11
DES figure for non-advanced FE £1.14
DES figure for advanced FE £1.82

competition with each other. Schools tend to resort to teaching by colleges of sixth formers.

Whatever informal links might exist, the group could find no evidence of formal relationships between colleges and training boards or skill centres.

For students already in jobs, the colleges provided an adequate service, achieving consistent and progressively high success rates in vocational qualifications. But, in a 20 per cent sample of O and A level learners from full-time sponsored courses, there was a low overall pattern of exam success, with a very high number of students too badly to be classified.

The schools were heavily biased in favour of arts and social subjects, with twice as many entering for O and A levels in those subjects as for sciences and practical skills.

The group found, however, that there was a low correlation between the subjects studied by 15th-year learners and their job choice. The group concludes that, while it is important not to underestimate the extent of emigration between the education authority and the training services agency, the system as a whole requires improvement. In the short term, steps should be taken to get more information about requirements, to involve more closely all those concerned, to iron out obstacles such as conflicting payment systems.

Mark Jackson

People

Mr John Herbert, head of the Comprehensive School, Newport, was the 1978 President of the Welsh Secondary Schools Association.

Mr Peter Daly, senior assistant education officer (secondary), is to be the area education officer, Gloucestershire.

Schools

Mr Roy Alcock, deputy head of Oakbank School, Leighton Buzzard, Bedfordshire, is to be head of Manor School, Stevenage, Herts.

Mr Lawrence Bryant is to be head of The Giles JM School, Sharncliffe, Leicestershire. Mr M. J. A. Jones is to be head of Mory's JM School, Weymouth, Dorset.

Mr D. J. Foran, housemaster of Castle School, Edinburgh, is to be head of Shawinigan Lake School, British Columbia, Canada.

Mr Raymond Geoffrey Jones is to be head of Durham Cathedral Choir School, Durham, in September.

Mr Geoffrey John Timm, master and head of modern studies, Bishop's Stortford College, Hertfordshire, is to be head of Ford School.

Mr R. G. Winderley, acting to be head of St Joseph's School.

Universities

Professor H. K. Pollitt is to be the new head of the department of history, University of Bristol. Dr J. H. Webster is to be the new head of the department of history, University of Wales, Aberystwyth.

In brief

Golden Jubilee

Home economics has established itself as a school subject and its place on the curriculum is being confirmed. The Association of Teachers of Home Economics, in its 50th anniversary issue, has time also to discuss the school curriculum and the curriculum of home economics. The Association of Teachers of Home Economics, in its 50th anniversary issue, has time also to discuss the school curriculum and the curriculum of home economics.

Rights guide

A guide to welfare state for students has been produced by the Child Poverty Action Group, which includes a section on school students over 16 and on leavers, gives full details of insurance and supplementary benefits, family income supplements and other allowances, and explains how to claim them. It also includes a section on the rights of students and the rights of leavers, and a section on the rights of students and the rights of leavers.

Vac work

The Central Bureau for Education and Exchanges has produced the 1978 edition of Working Vacancies, a directory of work opportunities in more than 50 countries. It includes jobs for qualified and unqualified people. Available from the Central Bureau for Educational Visits and Exchanges, 43 Dorset Street, London, W1P 3LP.

Eton scholarship

Eton College is to widen its scholarship catchment area to include Hampshire and Sussex in 1978. The scheme is open to boys attending county or voluntary primary schools living in Hertfordshire, Bedfordshire, Oxfordshire, Berkshire, Surrey, Kent, and the City of London. The scheme is open to boys attending county or voluntary primary schools living in Hertfordshire, Bedfordshire, Oxfordshire, Berkshire, Surrey, Kent, and the City of London.

Sport



Chris Wreghitt: eyes on university.

Karen holds all the aces

It was a highly frustrating start to 1978 for Sally Leadbetter, but a very successful one again for Karen Bridge. The two girls met in three finals of the All-England under-18 badminton championships at Warrington. Miss Bridge won all three.

Karen, 17, of Wallington High School, Surrey, made it a hat-trick of singles titles when she won 2-11, 11-1, 11-4. Her wins in the doubles gave her a second successive "triple crown". Miss Bridge paired up with the boys' champion, Andy Gade (Herts) to beat Miss Leadbetter (Gloucestershire) and Nick Yates (London) 15-10, 15-4 in the mixed doubles.

She and Gillian Clark (Ashford School, Kent), recent winner of the schools under-16 championship, beat Miss Leadbetter and Nancy Rollason (Warwickshire) 15-9, 15-6.

Girl basketballers get going

England's schoolgirl basketballers begin their home international championship campaign against Wales in Cardiff tonight with only a handful of the girls who played last year.

Four of last season's under-15 "caps" have been chosen again—Dawn Hall and Lorraine Ellis, both at Firch Park School, Sheffield; Joycelyn Phillips (Plasir School, Newham, London) and 6ft plus Sheena Jubb (Hemel Hempstead School, Herts).

Two survivors from last year's under-17 squad—Wai Wang Tang (Haverling Technical College) and Susan Thwaites (The Leggatts School, Watford). The other eight members of the junior selection are Denise Jordan (Oxycourt Comprehensive School, Ratcliffe-on-Trent), Elizabeth Stokes (Pennywell Comprehensive, Sunderland), Valerie Watson (Hustler Comprehensive, Middlesbrough), Christine Brodie (St Thomas RC School, Middlesbrough), Lindsey Wyone (Dunelm School, Middlesbrough), and Sara Jackson (Guswink School, Essex).

Inundated with 'model pupils'

The Physical Education Association has been inundated with citations for the "model" pupil of the year, says the general secretary, Mr Peter Sebastian.

The idea "seems to have caught the imagination" of a large number of heads, he says. The campaign, launched in the autumn, is to publicize and reward senior boys and girls who have

Head boy goes ahead even of the cyclo-cross professionals

by Stanley Levenson

Chris Wreghitt, head boy of Loughborough Grammar School, is today head boy of British cyclo-cross racing. In a feat unparalleled in this event, he beat Britain's top professionals and amateurs in an exciting finish to the national championship, sponsored by The Daily Telegraph, at Sutton Coldfield on Sunday.

And this coming Sunday, at Bilbao, Spain, he rides his luck in the world championship. Only a sensational upset could bring him victory, but Wreghitt hopes to improve on last year's 24th placing, which, at any rate, was the highest by a British amateur.

Then it's back to school—he has been away in Belgium for the past few weeks—to ensure his university place. Wreghitt has four A levels—

in history, French, geography and general studies—but has yet to clinch a berth at university, where he wants to read history and international relations.

If he is accepted soon, he intends to leave school at Easter and spend a large part of the summer taking part in road races. But if his A level grades need improving, life in the saddle will be relegated to second place.

At university he intends to continue cyclo-cross, which is the branch of the sport he has preferred during the past two years. Indeed, his stay in Belgium was as much to sharpen up his cycling as polish up his French.

Although only 19, Wreghitt is something of a cycling veteran. In 1970 he won the Midland and

national English Schools' Cycling Association titles in the under-12 group and has been competing with a regular accumulation of trophies since then.

Nothing, though, as grand as his new title, which included victory over the reigning champion John Atkins, who had won the two titles.

The Sutton Coldfield event began badly for Wreghitt. In the opening lap he broke a pedal crank and lost a few places while he changed to a new bike.

But after a couple of miles he was back up in the front with Atkins. The 35-year-old professional used all his skill and experience to try to lose his young rival, but Wreghitt kept going.

At the finish it looked as if Atkins would succeed him. Wreghitt, however, was known for his finishing sprint, produced once this time and snatched victory in the last 10 yards.

British Shipping Careers Service has moved to a new address.

If you...

- * want advice on career opportunities in the MERCHANT NAVY (on behalf of yourself or others)
- * require our career advisers to attend organised career activities.
- * want access to our film library (in most cases a free service) to promote such activities.

Please note our new address.
British Shipping Careers Service,
30/32 St. Mary Axe, London EC3A 8ET.
Telephone 01-283 2922.



British Shipping Careers Service

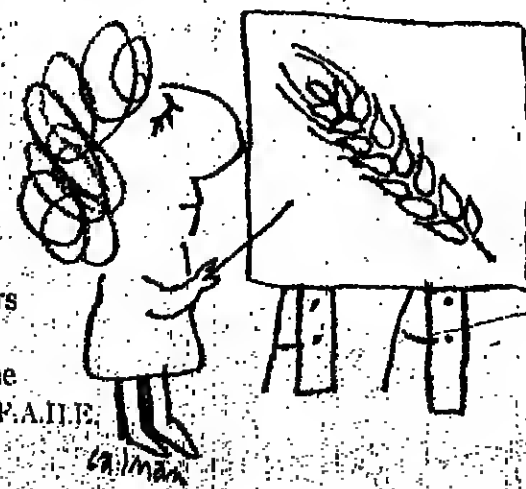
PLEASE GET IN TOUCH

either direct or at any of the regional offices in Aberdeen, Avonmouth, Belfast, Birmingham, Cardiff, Dover, Glasgow, Grimsby, Harwich, Hull, Leith, Liverpool, London (Prescot Street), Manchester, Middlesbrough, Newcastle, Plymouth, Southampton, South Shields, Swansea, Tilbury.

The Flour Advisory Bureau's Lecture Service to schools and colleges

Members of the Bureau's NUTRITION AND HOME ECONOMICS DEPARTMENT give lectures on food and nutrition (e.g. Choosing Our Food for Health, Modern Life and Modern Meals) and practical talks on the choice and use of bread to audiences of recognised educational establishments consisting of a minimum of 30 students (40 for practical talks).

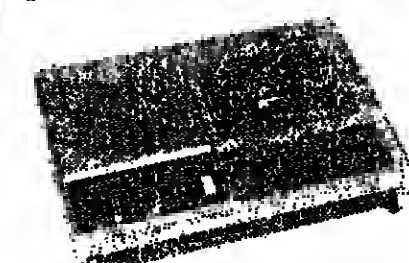
No fees or expenses are charged. All the lecturers are fully qualified and have had practical experience in nutrition, dietetics and home economics. The head of the department is Mrs. J. Audrey Ellison, B.Sc., F.I.P.S.T., P.A.I.F.E.



For further information please contact Miss Gillian Niblock, Lectures' Organiser, The Flour Advisory Bureau, 21 Arlington St., London SW1A 1RN. Tel: 01-493 2521.

FORCE 10 for Languages, Music and Commerce

TWO-CHANNEL CASSETTE RECORDERS



Languages, Music, Commerce or any application where the student can benefit from listening to a master programme whilst recording responses on the second channel.

TM406

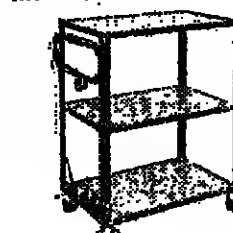
A sensibly priced robust machine with the unique feature of speed control to aid comprehension or to adjust musical pitch.

ER96

A strong and reliable recorder with the capability of being connected to a Teacher's Control Unit for Monitor/Intercom.

Both recorders can be modified for language laboratory compatibility.

Mobile Resource Centre



- Pre-wired
- Two 13 amp switched sockets
- Switched light
- Shaver with
- Individual units on off-on to make rove

Please send me full details on:
Cassette Recorders ☐ Mobile Resource Centre ☐

Name _____
Address _____

Force 10 The Force Ten Co. Ltd.
Haydon, Woking, Surrey.
Telephone: Woking 0211



1590 films

to suit all tests and interests:

- Agriculture & Farming • Careers
- Civil Engineering, Construction & Architecture • Commerce & Business
- Domestic Science • Electrical & Electronics • Engineering, Industry & Mining • Films for Children • First Aid & Accident Prevention • Geography & History • Household Equipment & Furniture • International Relations • Manufacturing Methods • Mechanical Handling
- Medical & Health Education • Motoring & Motorcycling
- Natural History • Recreation • Social Studies • Sport
- Transport • Travel & Places of Interest

Send £1.75 today for your 225 page Catalogue which gives full details of these 1590 films, the majority of which are available on free loan.

No postorder? Don't worry, we can arrange that too! Tick the box on the coupon for a quotation.

GUILD SOUND & VISION LTD
Woodson House, Gurdale Road, Peterborough PE2 6PZ.
Tel: Peterborough (0733) 63122

Please send me a copy of your Sponsored Films Catalogue (£1.75 inc. p&p each), I am enclosing my cheque/p.o. for £

☐ Tick for projection quotation.

Name _____

Organisation _____

Address _____

TES/10/2

BUYING OR SELLING?

Use the TES FOR SALE AND WANTED COLUMN to talk to your fellow readers of the TES. There are over half a million of them and an advertisement can cost as little as £2.28.

If you would like to know more contact Mrs Annie Lightfoot, The Times Educational Supplement, P.O. Box 7, New Printing House Square, Gray's Inn Road, London WC1X 8EZ. Telephone: 01-837 1234.

John Gardner on China's new look at the Cultural Revolution

Putting the clock back to 'elitism'

A major article in the December Red Flag has given a radical reinterpretation of the Cultural Revolution in education.

Written by the "mass criticism group" of the Ministry of Education, the article makes some surprising claims. It states in effect that Mao Tse-tung did not think there was too much wrong with education in the 17 years before the Cultural Revolution.

At times there may have been errors and deviations from the "proletarian" line. But these were generally localized and limited, and the officials responsible were often quick to reform themselves during the Cultural Revolution.

The article recognizes that many people may have formed a different impression, and goes to great lengths to explain why confusion should have arisen. As one might expect, it was really the fruit of the "going of four".

From 1966 onwards, they distorted Mao's instructions and exaggerated his criticisms of educational shortcomings. In 1971 they put forward "two evaluations", in which they asserted first, that in the "17 years" education was dominated by "the bourgeoisie", and, secondly, that most teachers and students trained in that period were fundamentally "bourgeois" in outlook, and could not be trusted.

Chairman Mao rejected these "absurdities" in the summer of 1971, and stated that criticism of the past must not be overdone. This "gang", however, refused to pass on his instructions, and until their arrest, distorted Chinese education by the ultra-left excesses.

The last article is the most important statement on education to be published since the arrest of the "gang" in October 1976. Since that time educational policy has moved steadily away from the extremes which were so heavily emphasized in the Cultural Revolution, and it would now seem, what at first looked like a limited move to correct ultra-leftism, has, in fact, been taken in the extent of re-education.

Italy

School street fighting grows

from Daibert Hallenstein

Rome's secondary schools have been hit by a growing wave of violence over the past six months. Much of the violence is the result of street attacks by gangs of neo-fascist youths on young left-wing militants who often respond in kind.

The attacks tend to happen before and after school and are receiving little attention in the Italian press which is currently swamped with more spectacular types of violence—homicides, kidnappings and political assassination. Most of the attacks are taking place in the streets near left-wing schools.

Right-wing violence in Rome's schools reached a climax in the period leading up to last month's school district elections. Left-wing pupils were beaten up, a high school was burnt down, and a week before the elections, a theatre was set alight off hour before an election meeting of left-wing parents was to have taken place.

The disturbances appear, for the moment, to be mainly confined to Rome which, despite its present left-wing city administration, has a high concentration of neo-fascist sympathizers, and a magistracy sympathetic to the right. Very few of the young neo-fascists charged with violence over the past few years have been condemned in court.

ing virtually all the policies of the elite early sixties.

As everything in China must be justified in terms of Mao Tse-tung's revolutionary line, it is essential to claim that pre-Cultural Revolution policies had his approval. This exercise has caused the article's writers considerable problems.

Their interpretation can be summarized up to a point: the criticisms Mao made in the mid-sixties were exaggerated by others. For example, in a famous 1961 statement in which he criticized such elite phenomena as extremely lengthy university courses and an examination system which treated students as "cattle" to be attacked, Mao made it plain he was criticizing methods and that the general direction of educational policy was not too bad. As Red Flag points out, this important qualification was deleted from versions of his speech circulated among the Red Guards after 1966.

However, the article is on less firm ground when it claims, for example, that a series of regulations for universities, middle schools and primary schools, drawn up in 1961, were fundamentally correct and that Mao formally approved them.

These regulations, in fact, were specifically designed to modify substantially a "Revolution in Education" launched by Mao in the Great Leap Forward of 1958. They replaced emphasis on academic involvement and productive labour with an insistence that academic standards be raised.

Students were told at the time that putting "politics in command" was necessary for becoming experts who could aid China's economic construction. As a consequence, Chinese education became highly elitist with "centres of excellence" at all levels. To claim, as Red Flag does, that these regulations were a "verification" of Mao's Revolution in Education is quite clearly at odds with the fact that from 1961 onwards Mao was critical of the very developments which they inevitably produced.

The article also uses statistics which do not fully support the contention that the educational system in the early sixties was better run in accordance with Mao's principles. Although the statistics seem accu-



ate enough, they conceal rather than illuminate a number of key issues.

It is claimed, for example, on the eve of the Cultural Revolution 77.9 per cent of middle school students and 64.6 per cent of university students came from rural and peasant backgrounds. This indicates a massive improvement in educational opportunity in general, but does not prove that, regardless of opportunity, it was achieved.

In the Cultural Revolution, the complaint was not so much a denial of access to education, but rather, that a "two-track" system operated, with workers and peasants getting far less than fair share of places in the schools and universities.

Similarly, the statistics on leading in stating that "only 1 per cent of university students were from 'exploiting' backgrounds" like landlords, like ex-

plains that the statistics are general population. In any case, the statistics are not as good as they seem. The statistics on university students, for example, are based on the 1955 and 1966 years from 65 families.

As the school year begins in South Africa, Martin Feinstein looks at the continuing troubles in the black townships

Will 1978 be another 'lost' year?

For at least 30,000 black children, 1977 will be linked back on as a missing year in high school education. With the start of the 1978 school year this month, there are still no signs of a change in the government's education policy, which has left black schools in chaos following widespread student boycotts and teacher resignations.

Field in protest against the Bantu education system, and the way in which it has been administered by the outgoing Minister of Bantu Education, Mr M. C. Botha.

No successor to Mr Botha, due to retire this month, has yet been named but early hopes that the new minister would introduce much-needed changes have dropped with a few policy statements from the Secretary of Bantu Education, Mr Gideon Rensburg, that no changes will be made this year.

Avoid calls from among others, the African Teachers' Association of South Africa (ATASA), the Soweto Residents Committee and the powerful Soweto Residents Committee to overhaul Bantu education syllabuses or well as the demand for a new attitude to black education.

Mr Rensburg said that the government would direct its attention to improving teacher qualifications in 1978, rather than make any far-reaching changes to the system itself.

Mr Rensburg also dealt a surprise blow to parents on school committees, who had been promised increased participation in the running of township schools, by saying that "it is not for students' and parents' bodies to decide what must be done".

Arguing against the Bantu Education Department's abolition, or its amalgamation with its white counterpart, Mr Botha said the syllabuses in black schools are in the main identical to those used in the white Education Department—with the difference "mainly in the word Bantu"—and that black pupils write basically the same examinations as whites.

There may well be fewer students to teach in 1978, particularly in

Soweto. Following the outbreak of urban black unrest in June, 1976, when hundreds of Soweto students fled the country, black students have begun looking elsewhere for their high school education.

Ghana, one of several African countries to do so, is offering 150 scholarships, and over 400 students are presently studying in Nigeria. Hundreds more are reported to be looking for study opportunities in Britain and the United States as "educational refugees". Soweto

Black reforms turned down

CAPE TOWN

The country's main African teaching union and leading Soweto educationists have come away disappointed from talks with the retiring Minister of Bantu Education, Mr M. C. Botha.

The 22,000-member African Teachers' Association of South Africa (ATASA) and the Soweto Residents Committee described the talks as free and frank, but said that all their demands for change had been rejected.

The delegations had sent Mr Botha a comprehensive memorandum calling for the abolition of the Bantu Education Department, with control of black education switching to the Department of National Education, the institution of free and compulsory African education and the equalization of educational expenditure between Africans and whites.

The talks were aimed at getting enough concessions to end the 18-month-old school boycott, which is now expected to continue.

In answer to an ATASA request that a senior certificate be made the minimum teacher training qualification, Mr Botha said that the Department was "already moving in that direction". Similarly, he told delegates who had requested radical changes in the discipline between white and African salaries that the government "is progressively narrowing such discrepancies".

There may well be fewer students to teach in 1978, particularly in

Australia

OECD report highlights rise in youth joblessness

from John Kirkaldy

SYDNEY

A report from the Organization for Economic Cooperation and Development (OECD) shows that Australia has more young people out of work and fewer receiving tertiary education than most other western industrialized countries.

The report, Education and Working Life, was by the Centre for Educational Research and Innovation, the OECD's educational think-tank (JES, December 9, 1977).

Its two major areas of study were measures to improve the transition from school to employment and to find effective ways to use the levels of education and training for the labour force for employment.

According to the report Australia had 186,000 people between 15 and 24 out of work during the first half of 1977. This represents 33 young people unemployed for every 100 adults out of work. The only OECD countries with poorer figures were Italy, Spain and Britain.

In 1975, the latest year for which world-wide statistics were available, only five Australasians out of every 100 between 20 and 24 were in higher education. In this category Australia was last and compared badly with the leading states Finland (23), United States (22) and Norway (19).

In comparable figures, for schools, Australia did little better. Only 46 per cent of Australian

children between 15 and 19 were attending school in 1975. This was the OECD's fifth worst, with only Austria, Italy, Spain and Britain lower on the table. Leaders in this category were Japan (76 per cent) and the United States (72 per cent).

The survey underlines problems which are causing concern to politicians, educationists and the business community in Australia. Latest estimates from the Department of Employment and Industrial Relations show that Australia's unemployment figures may reach a summer peak of 420,000, as school leavers and graduates join the labour market. The latest figures reveal that at the end of November, 356,957 were out of work, 5.8 per cent of the work force.

Over the past year the government has increased the scope of the National Employment Training Scheme (NEAT), whereby the unemployed are subsidized by the federal government for skill training at institutions or at work. Of the total figure of 27,942 receiving such training in October, 13,682 were school leavers.

A major government inquiry into education and training under the chairmanship of Professor Bruce Williams will soon be reporting with its recommendations. The OECD report has spotlighted some issues which will undoubtedly dominate Australian education in 1978.

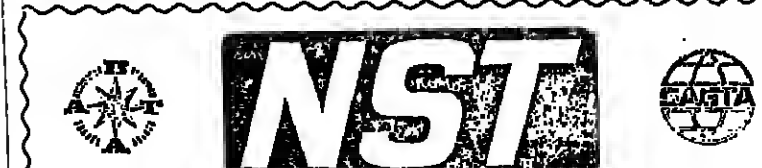
Soviet Union

Free textbooks

All pupils in general education schools are to receive free textbooks. The decision is expected to be fully implemented by 1983. At present parents have to buy texts and background reading for all courses.

Recent experiments in some republics with the provision of textbooks from library funds in schools have been promising enough to allow the authorities to go ahead with the national plan. It is hoped to issue full requirements of textbooks once every four years, bringing the numbers printed up to strength as required.

Kenneth Shaw



SCHOOL AND GROUP TRAVEL SPECIALISTS

Feature an attractive New Centre in

DIEPPE

From £38.40

(Big reductions for July/August/September/October departures)

'British Schoolcoach' tours include a full coach excursion programme in the tour cost

YOUR VISITS COULD INCLUDE

PARIS

and the historic town of

ROUEN

Write for full details to:

NST, FREEPOST
13-17 ALL HALLOWS ROAD
BISPHAM

BLACKPOOL FY2 0BR
(no stamp required)
Tel. 0253 52525 (8 lines)

WE KNOW A THING OR TWO

The YHA has been accommodating school parties for nearly 50 years. Nowadays some half million overnights are spent annually in the youth hostels of England and Wales by parties on a wide variety of educational projects. Why not take advantage of our experience? Please tick for details

- Come Hostelling (General Information) ☐
- Youth Hostels for School Journey Parties ☐
- Youth Hostels for Field Studies ☐

To YHA, Travellers House, 81 Albion, Harle

Name _____

Address _____

TE81

Trailblazers

To see them is an experience. To experience them is an adventure.



Trailblazers set out to combine holidays with education.

And education with excitement. Essentially they're an introduction to the great outdoors, including almost every kind of activity you can think of, from canoeing and snorkelling, to rock climbing and orienteering.

There are five holidays in all, to cater for every age group. Every one of them is well organised, safe and reasonably priced.

And for every ten children who come, there's a free place for a teacher. To see Trailblazers, all you have to do is return this coupon.

We'll be glad to bring our slide show along, to show you, your colleagues, parents and children.

Or if you'd prefer it, we'll simply send you our brochure.

One way or another, it's how the adventure begins.

I'd like to see the show ☐ Please send me your brochure ☐

NAME _____ POSITION _____

SCHOOL _____

ADDRESS _____

TEL _____

TQ: Trailblazers, 1a Bowler Street, Fulwood, Brighton, Sussex BN1 1AB (Telephone: Brighton 716001)



A POLICE CAREER

COURSES

UNIVERSITY OF EXETER

School of Education

ADVANCED PROFESSIONAL STUDY

Bachelor of Philosophy in Education

Applications are invited from both graduate and non-graduate teachers with not less than three years' qualified teaching experience. The course consists of one-year full-time study with the completion of a dissertation by part-time study.

The following special fields of study are available: COUNSELLING, CURRICULUM, LANGUAGE IN EDUCATION, REMEDIAL & SPECIAL EDUCATION, and SOCIOLOGY OF EDUCATION.

Diploma in Education (Music in Education)

Applications are invited from both graduate and non-graduate teachers with not less than three years' qualified teaching experience for this one-year full-time course, offered jointly with the Dartington College of Arts and based at Dartington.

Full details of Diploma and BPhil(Ed) courses are available from the University of Exeter School of Education, Gandy Braal, Exeter EX4 3LZ.

Master of Education

Applications are invited from teachers with at least three years' teaching experience and with either a good Honours degree or an Advanced Diploma at a high standard for one-year courses in the following special fields: THE TEACHING OF ENGLISH LITERATURE, THE TEACHING OF MATHEMATICS, THE TEACHING OF SCIENCE, THE TEACHING OF HISTORY, THE TEACHING OF MODERN LANGUAGES, LANGUAGE IN EDUCATION AND CURRICULUM STUDIES. The School of Education also offers registration for the degree by research of Master of Education (one-year full-time, or two years part-time) for experienced teachers with good honours degrees or an Advanced Diploma at a high standard, Master of Arts and Doctor of Philosophy.

Full details are obtainable from the Academic Registrar and Secretary (Higher Degrees in Education), University of Exeter, Northcote House, Queen's Drive, Exeter EX4 4QL.

Subject to confirmation, Applicants for Diploma, BPhil(Ed), or MEd courses who are LEA teachers are eligible for secondment on full salary; other teachers may be eligible for grants from Local Authorities.

North Yorkshire County Council

The North Riding College of Education

SCARBOROUGH

Summer School 9-14 July 1978

The following Summer School courses are offered to teachers.

Assessment and Evaluation in the Primary School.
Creative Taxila Crafts for the Primary School.
English as a Second Language: The Learner and the Teacher (This course is offered to teachers of English in Scandinavian, and French schools ONLY.)

Environmental Studies in Primary Schools

Learning Through Drama

Management in Schools

Practical Music Making for the 6-12 year olds

Talking, Reading and Writing—Developing Language Skills—3/13

Geographical Fieldwork in the Secondary School.

For further details contact:

W H Hudson
North Riding College of Education
Filly Road, Scarborough, North Yorkshire
Tel. 0723 52392

CORRESPONDENCE COURSES

Wolsey Hall, the Oxford Correspondence College founded in 1894, provides personal instruction by qualified tutors in a wide range of courses covering the following:

Teaching—Courses cover the Postgraduate Certificate and Diploma in Education, ACP, LCP, London Certificate of Proficiency and the Cambridge Diploma and Certificate in Religious Studies.
London University External Degrees and Diplomas—Courses cover the BA Degree in English, History, French, Geography, and Philosophy, BSc Economics, LLB, BSc, Alternative 1 and Alternative 2 to Maths and Law.
Business—Courses cover the following Institutes—Administrative Management, Bankers, Chartered Secretaries and Administrators, Statisticians, Linguists and the Bookellers' Association.
GCE, O' and A' Level.
Geography, BD, as well as the Extension Diploma in Sociology and the Extra-Mural Diploma in Theology.
Law—LLB and Bar Part 1 Business—Courses cover the following Institutes—Administrative Management, Bankers, Chartered Secretaries and Administrators, Statisticians, Linguists and the Bookellers' Association.
GCE, O' and A' Level.

Wolsey Hall

First prospectus giving full details available from The Principal, Wyndham Mill, MBE, TD, NLA, Dept. DD9, Wolsey Hall, Oxford OX2 9ER or telephone 0865 34231 (Answering after 4.45 pm)

College of Craft Education

ART & CRAFT

Summer Schools 1978

West Dean College

Chichester

July 24-August 4

Leeds Polytechnic

July 24-August 8

One or two week courses in Creative Embroidery, Dress Design, Tie & Dye & Batik, Theatrical Costume, Cutting & Making, Silkscreen Printing, Bobbin or Honiton Lace-making, Ceramics, Photography, Jewellery, Lapidary, Enamelling on precious metals, Silversmithing, Cast Pewter Jewellery, Technical Graphics, Bookbinding, Fibre Printing, Pottery, Rural Crafts, Wood & Allied Materials, Etching, Foundation Studies, Papermaking, Painting, Drama Workshop.

Accommodation Available.

Expert Tuition. Small Groups.

Please send stamp to:

Registrar, 35 Park Road, Hemel Hempstead, Herts, HP1 1JS, for prospectus with all details.

EXPERT HOME TUITION FOR

G.C.E.

and professional examinations (Accountancy, Banking, Civil Service, Law, Local Government, Marketing, Secretaryship).

Our exclusive methods of Home Study have brought over 300,000 examination successes, many first places. As every course is complete in itself no textbooks are required.

FREE 100-PAGE BOOK

Send now for a free copy of "Your Career" packed with vital facts on a successful career.

THE RAPID RESULTS COLLEGE

DEPT 1114, 1115, 1116, 1117, 1118, 1119, 1120, 1121, 1122

London SW19 4DB Tel. 01-847 7212

24-hour Recorded Call 01-847 1163 for prospectus requests

Accredited by the Council for the Accreditation of Correspondence Colleges

HOME STUDY

• Fresh start courses
• GCE • Degree
• Professional
• OU preparatory

National Extension College

Dept 14B

131 Hills Road, Cambridge

OVER HALF A MILLION PEOPLE READ THE TES

When you advertise in THE TIMES EDUCATIONAL SUPPLEMENT you could reach 56% of heads, 58% of other senior teachers, and 45% of junior teachers in maintained and independent primary and secondary schools in England and Wales. The TES is read by 50% of all school teachers. No other newspaper or periodical of the 39 on the survey recently conducted by NOP, has a comparable readership. In tertiary education it reaches 35%. Of teachers as a total The TES reaches 47%.

There is a further readership outside teaching. An independent annual survey conducted by the British Market Research Bureau gives the total readership of the TES in Great Britain as being well over half a million people in 1977.

Garnett College

Education and Training for Further Education

Application is invited for the following courses

BACHELOR OF EDUCATION

Three or four years' part-time study. Prepares candidates for further study and research in further education. Candidates should be serving teachers with an initial teaching qualification and a minimum of two years' experience.

DIPLOMA IN FURTHER EDUCATION

One year full-time or three years' part-time study. Leads to the study of further education in contemporary educational theory and in current development, with the opportunity to specialise in selected areas. Is recognised by universities as a "qualifying" examination for courses for higher degrees for graduates and non-graduates. Candidates should have reasonably substantial teaching or administrative experience in further education, administration or industry training.

ilea

Further details and application form from the Principal (Ref. 3/TES), Garnett College, Downshire House, Roehampton Lane, London SW15 4HR (01-789 6533).

UNIVERSITY OF LONDON INSTITUTE OF EDUCATION

Diploma in Educational Administration

Applications are invited for the course leading to the University of London Diploma in Educational Administration beginning in October, 1978. This is a three-year course extending over two academic years, attendance at the Institute will be on one afternoon per week in the first year and on one day each week in the second year.

The course is designed for those with or preparing for substantial administrative responsibilities in schools, colleges and polytechnics and other educational institutions; and equally for officers in other agencies connected with the education system. It will include the study of the educational system in its political, administrative and institutional contexts, the assessment and use of modern management methods and the analysis of work and organisations. Some specialisation will be possible in the fields of primary, secondary and further higher education. A student will be required to undertake an individual study relevant to his or her administrative work in which he or she is working.

Further details and application forms obtainable from the Academic Registrar, University of London Institute of Education, 20 Bedford Way, London, NW1 2AP. Applications should be received by 15 March, 1978. They should not be delayed until the applicant's employer has decided whether to give financial support.

Educational Development Association

BOGNOR SUMMER SCHOOL

29th JULY-11th AUGUST, 1978

BOGNOR COLLEGE OF EDUCATION

Fortnight Course:

THE JUSTINE WARD COURSE IN MUSICAL EDUCATION

For Brochure write or phone:

Jean Fisher, 55 Mill Road, Whitliff, Peterborough, Cambs. CB3 7PH Phone: 0753 203330

FIRST WEEK COURSES

*Primary—Middle School Management

*Infant—First Schools

*A Primary School Language Policy

*The Primary School—organisation

*Non-planning

*Art and Craft

*Pole Dancing

*Disturbing Behaviour in Children

*Children with Learning Difficulties

*EXCELLENT SOCIAL PROGRAMME

INVEST IN YOUR FUTURE BY BOOKING TODAY

WEST LONDON INSTITUTE OF HIGHER EDUCATION

Offers a new course—

TEACHING OF ENGLISH AS A FOREIGN LANGUAGE

(one-year part-time course for qualified teachers)

leading to—

RSA CERTIFICATE FOR THE TEACHING OF ENGLISH

AS A SECOND OR FOREIGN LANGUAGE

(Two three-hour sessions per week—afternoon and/or evening)

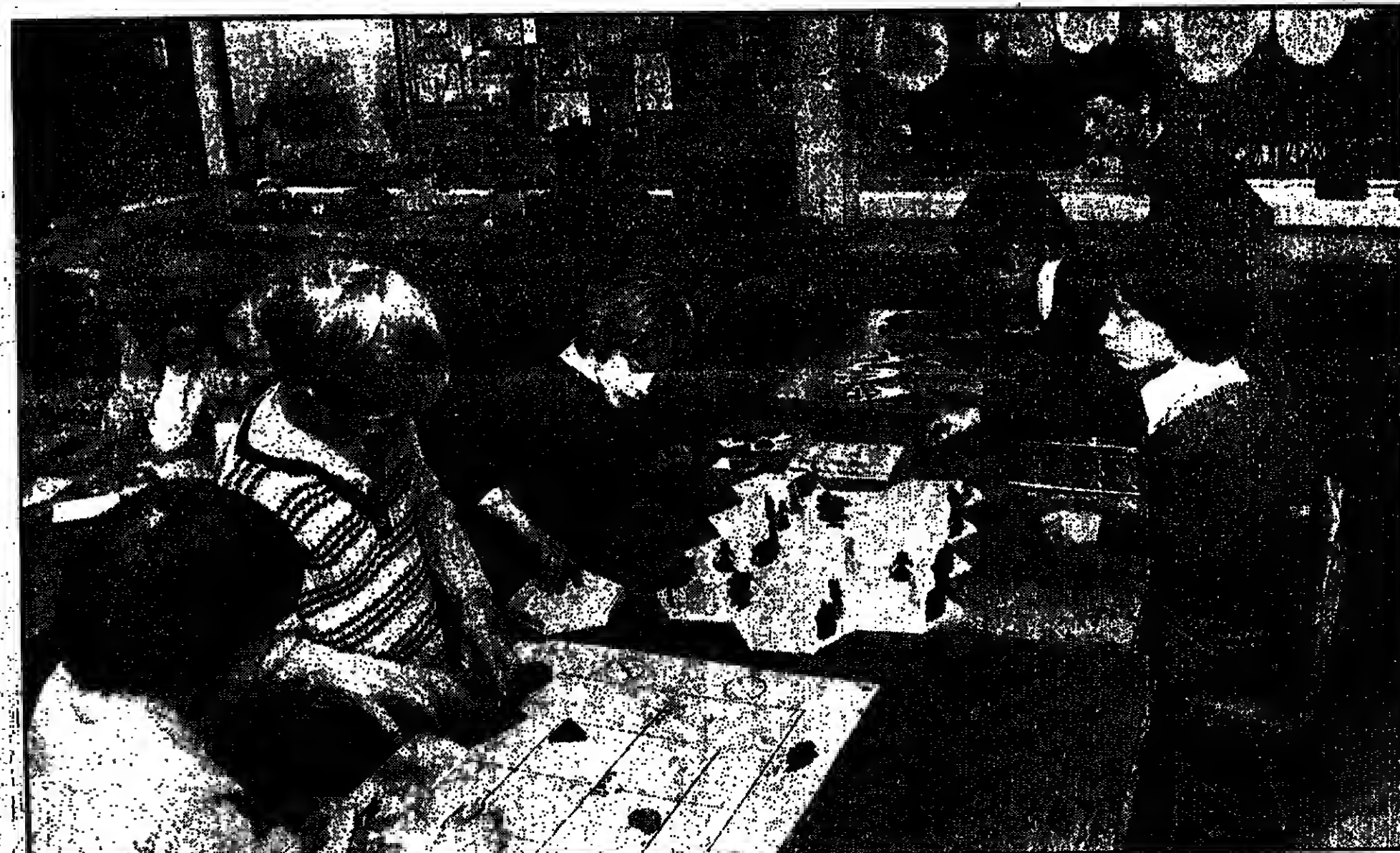
Apply to: Assistant Principal (Admissions), WLHE, Gordon House, 300 St. Margaret's Road, Twickenham, Middx. TW1 1PT.

At home in the mathematical depths

The educational journal Forum* today publishes a special number on 'non-streaming'. We reprint

here an article on mathematics and mixed-ability grouping

by Philip Sherwood, a Leicestershire head teacher for the last twenty years



Modern educational jargon and abbreviation tends to bewilder me. I have never had "mixed ability grouping" explained and defined to me. I take it to mean "unstreamed" and to imply the approach to learning typified by the Swedish IMU programme (Individualized Mathematics Instruction).

The expression is current and modern, the practice has been with us for a century or more. It was the mode at Tolstoy's school, and if you find his educational approach too anarchistic perhaps you will accept a not untypical Victorian village school in the days of payment by results, 60 on roll, one certificated teacher (Miss E. M. Castle) and a monitor paid out of her slender salary. There were 31 separate groups in the class, not counting the infants, who played with their bricks in the midst of it all.

Miss Castle admitted to the members of the Commission on Elementary Education (1886) that "it was bedlam trying to get 60 children up to the standards", but she realized that the only way to do so was by working with 31 separate groups and giving her own sitting room as a "private study area" for the children.

In the midst of this bedlam she managed to teach violin. She found time to play with the infants and declared: "I will not believe in learning and it being made a drudgery, I like to hear them laugh." Compared with Jubilee Year 1977, and a head of department defending the very rigid setting "sheep and goats" regime of a middle school. He was being baited by the staff of a local junior school, and in fairness was defending a system for which he had no enthusiasm.

He had calculated that to run his department with mixed ability grouping would require each member of staff to work an additional 20 hours a week. "And where do you find teachers with that much dedication, particularly a married man, with, say, two children?" His junior school colleagues listened with awe and astonishment, as of course would Miss Castle (unmarried, no recorded children).

He was right. Class teaching with its attendant setting, streaming and selection is easy. It is frequently happens, I find myself standing in at short notice for an absent teacher, I never attempt mixed ability or individual work. A class lesson is easier, neater, less demanding and requires minimal involvement by me.

I am never very proud of my performance. Our classes are unstreamed, individual work is the commonplace, and my class lesson, particularly in mathematics, can only be appropriate for one level of ability; for some it will be too easy, for many too difficult. I accept that I could vary the levels of difficulty in the work set, but I know from long experience what Miss Castle knew: given 60 children, you need a minimum of 31 groups. In no subject is this more true than in mathematics.

I was a mathematical "drop-out" by the age of 12. I was censured for my elementary school incompetence; the subject was used to make Saturday afternoon detention insufferable. I was well pilled with mnemonics like "change the sign to the bottom line and add", "turn the divisor upside down", etc, but I realized that I was "dropping down the ladder rung by rung". There seemed little point in trying to relearn.

No subject has quite such well-defined limits of minimal competence. You may write English, and I frequently do, with some regard for the importance of paragraphing, but attempt mathematics with only minimal awareness of place value and you will find yourself in a morass. Awareness of something symbolized as HTU is less than minimal.

Having decided to leave mathematics to others, I bluffed my way through an engineering apprenticeship, and found that with a few stereotype techniques it was possible to survive at least of technician level. Engineering schools then were quite capable of teaching the techniques of transposing formulae without complaining about the inadequacy of the nation's mathematical education.

When, however, I came to teach I realized that I was not equipped for the task. Continued on next page.

continued from previous page

ized that my own mathematical incompetence, together with my jaundiced view of the subject and those who taught it, presented problems. I concluded that my own difficulties were the results of bad teaching, coercive methods and the inability of my teachers to see when I was floundering or floundering. They could not see the latter because they only had eyes on the ultimate, getting a maximum of us through to grammar school and a maximum of that select group through to matriculation.

Noble abuse. At that time I was a great admirer of the Victorian artist, Lady Butler. She painted imperial triumph and disaster with rare panache. Her "Remnant of an Army" should hang in every staff room; it shows Dr Brydon on a spent horse staggering into Jelalabad, all that was left of the thousands who had invaded Afghanistan in 1842.

Our present day remnant of an army is the few who survive the system to collect its ultimate accolade—A level passes. No one is unduly concerned with the stragglers cut up along the route. I suspect that science and mathematics have the lowest survival rate. No doubt because the stragglers are eliminated at very early stages and are most vulnerable.

To avoid driving all my class at one pace toward the first bazaar (the 11-plus), I used Beacon Arithmetic Books and let children pace themselves. Although the field spread quickly, no one opted out. The textbooks were well written and the children's difficulties anticipated.

As we draw nearer the 11-plus I shamelessly concentrated on Moray House "banker" questions, the ones that were certain to appear. The results were acceptable, and there were no casualties.

I did not delude myself that I had taught mathematics, but at least by individualizing work I was able to devote more time to children who needed help at critical moments.

I was aware that it was a negative attitude to a subject that deserved better. I did no great harm—and no great mathematical good, although no doubt I would have earned Mr Callaghan's praise; those children could "do" sums.

I would have still been teaching children to "do" sums with Beacon's successors Alpha and Beta, or Fletcher, had not some maverick Leicester University lecturer (Z. F. Dienes) come into my school and alerted children "playing with bricks" in the midst of it all.

I had a sudden glimpse of what mathematics was about: I could watch ideas explored, see children reaching conclusions that had eluded me, and listen to them talk out loud their thinking. I was humbled to find a ten-year-old who devised his own approach to long division in multi base systems, and who could explain his method to me without being over-patronizing. It was creative mathematical thinking; I had never encountered it before.

It was an auspicious time for innovative teaching. The 11-plus was in decline, or at least in Leicestershire. Pisgah had been discovered live and well and living in Geneva (he still is, though you might not believe it) and the Inspectorate, under Edith Bigga, was looking for ways to implement the 1955 report of the Mathematical Association on the teaching of mathematics in primary schools.

She was insisting that "the first aim is to ensure appreciation of the subject, its purpose, the order and pattern of numbers as well as of geometrical form; and to elicit an aesthetic awareness of mathematical shapes and patterns in nature as well as in the products of our civilization. A right attitude is all important, appreciation of mathematics must come first."

Dienes was writing "the motive force for mathematics learning should be the thrill of discovery, not the dubious aim of getting a higher mark than somebody else, or the kudos of a prize. It is possible that by encouraging the joys of doing rather than of having we shall be helping to bring up people whose behaviour is not entirely determined by self interest."

It was a climate that fostered innovation and experiment. With a few enthusiastic members of staff we began to build up an individualized mathematics programme which would allow time for playing with bricks and learning from them, which allowed not only for different rates of learning but also different ways. We are still at it.

The bricks became more subtle, more colourful and the scope of their use extended beyond our expectation (and background mathematical knowledge). We have learned with the children. The 11-plus disappeared—underground. We began to see ways of using our ideas in other those willing and able could explore mathematics at levels we had not thought possible.

Unconventional topics like mathematical groups could be introduced via games and colouring activities. For some the activities themselves would be intellectually demanding enough, for others discovering isomorphisms between the games would seem sufficient, while for a few the mathematical properties of groups would be stimulating.

One problem is that the capability of children is unpredictable. It is no use imposing limits. To say of a first or second year Junior that "maths-base numbers will only confuse, be stick to denary" is to risk failure, using those ideas—and needs them. I am less certain of who is capable, attempting "advanced" work, or what is advanced.

Over the years we have built up a resources of materials, assignment sheets, worksheets and ideas. This imposes a limit on the work which children are doing, but does not preclude teachers from introducing their own ideas or topics. The idea of developing a class topic on it is not regarded as heresy. We use a mechanical device that will serve the facts that are best learned mechanically. Computational skill is assimilated by the bricks and Bruner's "iconic" mode. We have never let "syllabus" dictate style of working. Groups have faded by the O level syllabus; we still like to have children to explore them, they have elegance that we can both enjoy.

I have said that the 11-plus has disappeared—underground. In our part of the world it persists, as it must. In September when our child leave us they will be "unstreamed" all of two weeks, during which time I will sit a series of tests in basic arithmetic skills and be "set" (or "settled") on their performance.

The tests will not attempt to measure mathematical aptitude; such tests are rare and difficult to administer. They assess mainly computational skill, and ability to beat the clock. Normally children would be ill-prepared for an experience. We have never found use for testing other than diagnosis.

I have always thought mathematics "reflective activity", and have associated speed with reflection. I see alter the situation, and would agree

Stewart Mason when he said of the 11-plus that only the very worst headteachers "were prepared to allow it to distort the curriculum".

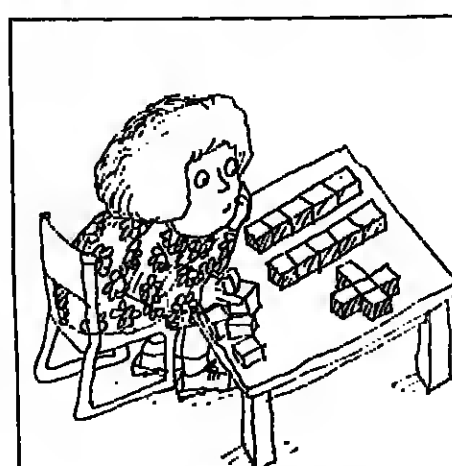
I do not allow the underground 11-plus to distort our mathematics curriculum, but I bend it ever so slightly. Once a week I set a test of the sort they will experience at the secondary stage, and leave children to do it in their own time—and another portion of my integrity is eroded.

The work at the school has brought contact with others attempting similar approaches: Thomas Varga in Hungary, Nicole Picard in France, Dr Abele in Germany and Esther di Grossi, a Brazilian mathematician from whom I am still learning to samba.

When Nicole Picard came with a colleague to the school, she wanted to see a high school mathematics class. I took them to Oadby Manor High School, and there we saw a maths lesson which mirrored our ideas, and yet modified them to meet the constraints of secondary education.

Where in our class children would be working at many different levels and topics, there the class worked at three levels and one general topic. The atmosphere was relaxed, children were enjoying real mathematical activities at quite complex levels, only the approach and method was varied.

The French mathematicians became involved with children playing a vector game, they were impressed by the mathematical "edge" of their opponents. This was no "put on for visitors performance", it was mixed ability learning, for all abilities, with a rigour to match levels of competence.



"I do not allow the underground 11-plus to distort our mathematics curriculum"

I mentioned the Swedish IMU project. This was intended for use in an "unstreamed" classroom. Work was individual, self-paced, with opportunities to side-track and pursue topics and ideas. Swedish children are normally separated at Grade 7 into those who will need mathematics professionally and those who will need only everyday competence. The two groups are then taught separately. Schools using IMU made no such distinction, all worked together. I would like to record that this was a great success; sadly, only a few schools still use the approach.

Within an unstreamed class there may

exist "hidden streaming". The children can be grouped by ability, with each group working at various ability levels. I have encountered this indirectly.

Children transfer to us from other schools, and I am sometimes assured that they sat at the "good" table. They rarely settle easily, and resent the fact that we have no "good tables". The discovery that they are not so good as they had been led to believe is somewhat traumatic.

In whatever way a class is organized, it is both inevitable and desirable that the field will "string out" and there will always remain that element of "hidden streaming". If no particular virtue is ascribed to being ahead on any series of assignments, if there is opportunity to work together with the more able assisting and collaborating with slower children, then in our experience there is neither resentment nor any feeling of inferiority.

Mathematical skills are diverse, not all children are equally endowed, but it is not too difficult to find some area in which they can achieve that one element which must influence motivation, success.

I have implied that there are advantages to "unstreamed" classes. It does reduce the "casualty" rate, because there is always time to ensure that competence and understanding are surely founded. It does not "imprint" failure, and reduces the tension and stress to which John Bigga attributed many of the emotional blockages so prevalent in mathematics learning.

The major drawback is that it imposes far heavier demands on the teacher. Unless that is recognized and accepted, attempts at mixed-ability work in any discipline will not only fail, but also bring into disrepute innovative work generally.

Within the primary school there has been an ideal climate for experiment and innovation. It is a climate that is changing with the threat of TAMs (Tests of Attainment in Mathematics) and the Assessment of Performance Unit.

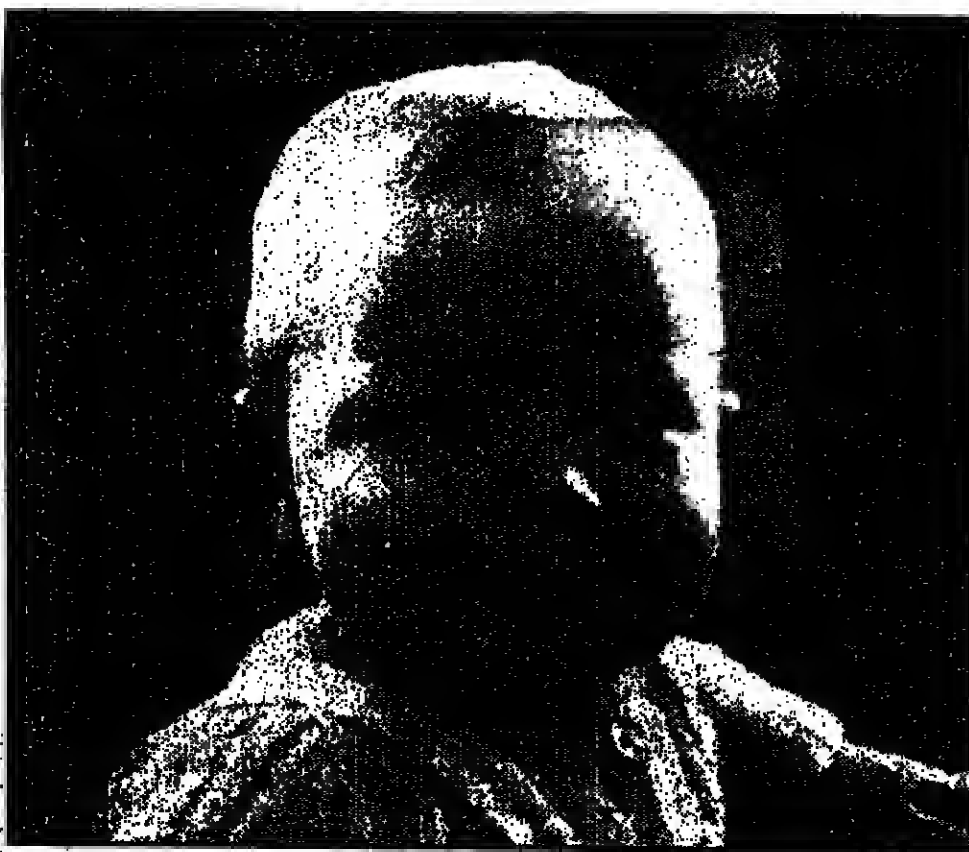
I do not feel menaced. I know that there is a test for mathematics in the school. I know that within the school mathematical environment children are stretched fully, but never threatened either by failure or lack of progress. We are keen on swimming at school, nothing delights me more than the seal-like "at-homeness" in water of the children, except that same recognizable "at-homeness" in mathematical depths.

I suspect that when TAMs come our way we shall not fare too well. Conventional tests will not measure what we attempt. Conventional teaching best matches conventional tests, as Bennett's Teaching Styles research shows (that and little else). Conventional teaching and testing contribute most effectively to the "Remnant of an Army" scene.

Mias Castle's strategy will ensure an massacre of stragglers; thirty-one groups to sixty children, plenty of bricks to play with, a minimum of drudgery and some laughter; lastly, a very real concern for the best interest of the children.

Unless you are committed to these, stay with the well-streamed class, a good textbook and even better answer-book; some will survive.

Philip Sherwood is head of a Leicestershire junior school. Forum is available price 85p post free (annual subscription £2.50 for 3 issues) from The Business Manager, Forum, 11 Beacon Street, Lichfield WS3 7AA.



A baby reacts to (left to right) a soprano xylophone, an alto xylophone, a soprano glockenspiel and a bass xylophone.

Sound ideas

Can a child's ability to read and write be influenced by early musical training? Audrey Wisbey's views on the subject have aroused considerable interest, as Hilary Finch reports

One of Worthing's more quiet residential roads has of late been constantly busy with cars coming and going. Between three and four hundred letters can be delivered there each weekend. Sometimes they are simply addressed to Dr Audrey Wisbey, Worthing—but they get there all the same.

Audrey Wisbey is someone who believes that early musical training is essential for the full development of literacy skills. Since she first talked

about her ideas on Radio 4 last August, she has had over a thousand inquiries. Every L.A. except one has contacted her, and she has been on the go seven days a week, answering letters, writing, meeting babies and adults, lecturing and advising. At the end of the month, she will talk about and demonstrate her methods in a series of recorded programmes on BBC Radio 4's "Woman's Hour".

It all began when she was head for 11 years of a school for children with learning and behaviour problems. In the effort

periods of singing and aural training that she introduced early in the mornings she soon found that a consistent pattern was beginning to emerge, that the music training was starting to have a noticeable effect on the children's basic literacy.

"I started to experiment to see if I could improve on it. Eventually I was so convinced that I went off to medical school to study basic audiology, neurology, visual science, and so on. There I realized that the basic hearing present in a child at birth is, in fact, musical by

nature, and that we have, as we've been so sophisticated, forgotten that hearing is given to us not as a means of detecting and understanding language, but for preservation.

"Like an animal in the bush, a child hears the exact pitch of each sound, distance, direction, rhythm, intensity, tonal qualities, and this is because of the ability to hear all the upper harmonics of the sounds."

"As a result of learning these sounds, a child responds with eye and body movements. It learns to blend the ingredients together, starts babbling, and gradually speech develops. The memory of the speech sound to be coordinated onto the visual cue, then how the massive amount of practice that goes into actually producing the sound is

Audrey Wisbey points out that the frequent catarrhy colds and infected tonsils and adenoids of early childhood can sometimes considerably impede this development—often without anyone noticing

anything goes wrong at this early stage. A child won't be able to develop properly visually in order to read, nor will it develop a proper muscular pattern in order to write.

From about three onwards, the ability to hear very high-pitched sounds wanes: so, unless the child has already learnt and memorised the finest discrimination between sounds, its spelling will suffer.

Was she implying that all children should be tested at preschool age? "Yes, it's absolutely vital. When a child goes to school it needs before it can start to learn to read, a marvellous lot of the sensory cues. If the child hasn't got the memory of the speech sound to be coordinated onto the visual cue, then how the massive amount of practice that goes into actually producing the sound is

She believes that, just as children play with toys to help reinforce concepts of line, space, colour, and they

learn depth by sand and water play, so they need to play with intensity levels, duration and pitch. "You can play musical games to teach a child differences between long and short, loud and soft, then gradually relate them so they can learn finer discriminations."

She tries to encourage every mother, wherever possible, to have "music lessons" at the piano with the baby on her lap—right from the start. (She prefers the piano, as the sound quality of pitched percussion instruments is not good enough for the very sensitive hearing of young children.) The teacher should continue the process, always watching out for any children who seem to need extra auditory training.

In order to spread the word, Audrey Wisbey is trying to visit as many of the 1,062 teacher centres as she can. International Tutor Machines (Asford, Kent) have sponsored her for a hundred lectures, believing that parents and teachers should understand her ideas and be able

to help the children themselves.

She is incensed about the Cinderella status of schools music: "Music is now being taken out of the timetable in the interest of better literacy standards, when it is the very subject that will improve them. Music is the source of all learning. It comes under the heading of priority skills, of basic essential skills."

The message is beginning to get through. It has taken 18 years of full-time study and full-time work. She usually gets up at 4.30 am to write and study, often gets on a train at 7 am, covers several schools in one day, interspersed with college visits and lunchtime appointments with advisers, and then gets on a sleeper at 11 pm.

If she can interview a child or parent in a British Rail waiting room in between trains, then so much the better. The inside of her briefcase is covered with telephone numbers of places where she can be reached.

She is making a film, writing a book

called *Dyslexia: A Musical Remedy*, and has just set out for four or five months lecturing in Tahiti, New Zealand, Australia, Fiji, Tonga, South Africa, Nigeria, and Botswana.

Listening to Mozart is about the only relaxation she allows herself. "You see, I'm fully committed to helping kids become normal kids. I don't believe there's such a thing as a bad kid, really. On the whole, they just need help they didn't get."

At the very worst, these tests will ensure that a child will become musically literate, and use its hearing more; at best, it could be the difference between being able to be fully literate or being a total failure."

* The series of 10 programmes begins on January 31. Audrey Wisbey will be teaching two children from scratch in a studio. The musical activities are structured: a stage further, taken the "games" a stage further. Letters will be available to explain how parents and teachers can help children themselves.



David Budgen on Chekhov and Lermontov

Chukhlov is concerned only with Chukhlov's art. Moreover, she is tightly convinced that Chukhlov is a consummate artist, that his stories possess a classical stringency and an "irrefragable" quality, and that his prose is as solidly constructed as a classical Greek temple. She demonstrates those qualities by a series of analyses which are as remarkable for their precision in spelling everything out as for their perceptiveness. We see how in *The Cherry Orchard* Chukhlov's characters dislocate the reader's belief in objective reality; how in *Lights* he articulates the problems of knowledge within the framework of a novelist's accuracy of psychological observation; how in *The Lady with the Dog* he writes from what, by the late nineteenth century, has become the banal and acrid theme of adulterous recollections; how in *Two Souls* he consciousness of pain, between estrangement and sympathy. Having begun her book in an orthodox fashion with a piece on Chukhlov's last work, *The Cherry Orchard*, she opens chapter 10 with a discussion of *Lights*. She must surely write the manuscript of this review

Along with Tolstoy, Lermontov was one of Chekhov's idols. Indeed, he said that the poet's *Tarzan* (part of *A Hero of Our Time*) was the ultimate model for the short story. But Chekhov's book is a very different matter from Miss Hahné. Two fruit of five years' labours and consultations with a score of professors, it is claimed to be the first full-scale biography of Russian Romantic poet-pamphleteer.

It is also rather less than it appears. Apart from a fairly big and interesting

On this is made clear.

Above all, Lermontov's works themselves are all but absent. Mr Kelly would seem to have almost as little patience with Pechorin, the proto-Nietzschean superman of Lermontov's only novel, *A Hero of Our Time*, as Whistler's I had and the readers only desultory to the sublime *Notre-Dame*. But then literary criticism is not really Mr Kelly's business; for this he tends to rely on the late Professor Leavis's excellent monograph, entitled simply *Lermontov*.

David Budgen lectures in Russian at the School of Slavonic Studies, London University.

Robin Maconie on Schoenberg, John Eggleston

to set the 'images' free from the development of a critical, predominant and the subconscious'. Wain. The author has a Marxist look or our social active style is certainly entertaining but educational arrangements, why is it hardly conducive to clarity of the seen to bring about inequality. Some ideas that may be discarded such as opportunity and to advance verbal smoke-screen seem original, mainly for reform of the social system are neither new nor useful. But the solution. Characteristics of a better summary of the present situation. Approaches go on to outline surrounding Schuberger and his school. Ideological strategies that must, though students should read it specifically designed to achieve under guidance. It is one of the few fundamental reforms. The other mode, well established of its kind in which the footnotes convey the very beginnings of education, is to what that the main text.

Teaching in a Multicultural Society offers a more positive approach. Taking inequality as given, a range of contributions suggest how teachers can work more effectively with minority children in the classroom and in so doing avoid the twin perils of devaluing their own ethnic cultures or, alternatively, emphasizing the "deviance." Hilliard writes in a useful way on the intellectual strengths of minority children and suggests how these may be more readily identified. Kelly offers some perceptive suggestions for

One of the characteristics of advocates of egalitarian education throughout the quarter century has been their frequent lack of serious attention to their critics. It has often been a facile dismissal to say the sum total of their criticisms. Many of the critics writing in *Daedalus*, such as the Black Panthers, have gone unmentioned and a certain public has often taken their silence as acceptance of their criticism. Wright has now stepped

continued

39, Store Street, London WC

From your newsagent

One of the characteristics of advocates of egalitarian education throughout the quarter century has been their frequent lack of attraction to their critics. All too often a facile dismissal has been the sum total of their response. Many of the critics writing in dominant journals such as the *Black Panther* have gone unanswered and a certain public has often taken its silence as acceptance of criticism. Wright has now stepped

continued

Turn your pupils into Bookworms



If you'd like to give your pupils an extra incentive to read, you'll find the Bookworm Club can be a big help. It's run by Heflers of Cambridge and E.J. Arnold of Leeds, and twice every term it presents a super selection of some of the best children's paperbacks from major British publishers.

Each new selection of titles is described in a colourful club newspaper called the Bookworm Bulletin, which also contains articles about authors and illustrators, as well as extracts from some of the books.

Accompanying teacher's notes offer editorial guidance and opinion on the books, and club extras for the children include Bookworm badges.

Unlike other paperback clubs, Bookworm gives the school a bonus too—10% off the value of all books ordered.

If you'd like to know more about the Bookworm Club, just return the coupon, and we'll send you full details, along with a special classroom poster and quantities of the latest Bulletins.

To: The Bookworm Club, FREEPOST, Cumberland, Glasgow G68 0BR.

Please send me full details of the Bookworm Club, along with the special classroom poster and copies of the latest Bulletin.

Name _____

Position _____

School _____

Address _____

Authority _____

TES/87

THE BOOKWORM CLUB

resurgence

"We planned 'Small and Beautiful', and 'Self-Sufficiency', now we broaden our focus. In our January issue: Proceedings of the ANTI-SCIENCE SOCIETY, exclusively in Resurgence. HOW I BEAT THE SYSTEM. Essay Competition AFTER THE RAT-RACE, WHAT? PROGRESS IN CIVILIZATION. APPROPRIATE TECHNOLOGY. Leopold Kohli illuminates his philosophy 50 MY FATHER SOLD THE COIN. Story of an American farmer's struggle against agribusiness. Lifetime subscription only £100. If we have our way, you may be long enough to make it a bargain. For doubling Thomas's, one year's subscription only £3.50 for six issues. And for registered postmasters, the January issue for 50p. Resurgence, Puddle Inn, Fallowfield, Cheshire, Cheshire, U.K.

If you buy anything for your school first check the advertisements in the TES
THE TIMES
EDUCATIONAL SUPPLEMENT

Paperbacks

Recognizing ourselves

Psychology is About People, by H. J. Eysenck. Penguin 90p. 14 02 1981 1.

Psychology stands accused of evaluating important issues in human affairs and busying itself with the trivial and the irrelevant. Now its most eloquent, polemicist rides to the rescue. In a swift canter through the fields of sex, therapy, education, politics and pornography he defends the honour of behaviourism. It is an enjoyable book to read: his style is as energetic and witty as ever, his eye is alert for a good anecdote, and his stomach is aching for controversy. All the sadder then that the substance gives so inadequate an account of his subject.

The unique claim of psychology as a body of knowledge about people is that it is an empirical science. One of the notions in this book reads: "It is wrong always everywhere, and for everyone, to believe anything upon insufficient evidence." Again and again Eysenck argues the case for that most entrenched of conservative positions in which intuition is preferred to any decision that is not supported by overwhelming research evidence. Yet in the text he regularly resists discussing in any detail the complex issues in research method in which his argument often rests. In this respect he is

curiously condescending to the general reader in a way that astutely less pompous behaviour writers are not. The partial summaries of other research are unreliable, the presentation of other theories is partial, and the historical reviews selective and imbalanced. The best parts of the book are where Eysenck describes his own work: an ambitious study of personality with a clear view of how man's biological and social aspects are related and a wide-ranging body of research attempting to elaborate on this model. For a clear and lively exposition of what Eysenck has in say himself about man this book is a very useful reading. It is a pity he holds the length and twice the value if he would leave other theorists alone. Of course, to present his idiosyncratic perspective under a general title like "Psychology is about People" is misleading. Eysenck has extended a behaviourist view to encompass very important dimensions of individual differences. People are much more complex than that. A psychology that is recognizably about ourselves and those we know must be more difficult, more tentative, and quite a bit duller than this.

Tony Cline

Successful editions of William van der Eyk's *The Preschool Years* (Penguin 80p. 14 08 1981 81) say

Bread and butter

Fay Humphreys on lower secondary combined science

Combined Science Worksheets. By Arkless, Davies, Evans and Hambleton. Book 1, 0 119886 4. Book 2, 0 119887 2. Whurr 20p each (teacher's guide £1.00).

This set of worksheets with accompanying teacher's guide is an unpretentious addition to existing material and is well worth considering. This is the "bread and butter" type of material which is thorough, wholesome, but lacks, at first glance, incredibly dull, particularly in the form of the material is also available as a set of spiral notebooks for those who prefer worksheets issued now at a price.

It is important to remember the danger of ending up with 16-year-olds incapable of stringing together more than two coherent sentences—a danger common among those spending a good deal of time with worksheets. But there is far more substance to these than to many that have been prepared in previous years; they demand more varied responses, more thought and more skill in written English.

It is also pleasant to see some sort of sequence between one day's

work and the next and the way in which both chemistry and physics are integrated into the time-time biological strands of classification and key construction (e.g. chemicals we can and cannot smell; keys to laboratory glassware; animals and steam engines). One or two items require more statement of precaution in the pupils' notes (e.g. Mithribas around 0s—Year 11). The course has been tested over several years with children in mixed ability schools. The amount of the material is only for the upper children (at end of this occurs in the teacher's guide). I find that the amount of reading and the actual language used would be beyond the reading ability of many of the less able children whom I have encountered within a comprehensive school.

The teacher's guide is an extremely compact, useful text. It not only ends all the practical and theory lessons but gives a lesson plan for each worksheet, technician's notes on the materials required for each day's work, supplementary information referred to in the text, examples of possible additional worksheets, and suggestions for extension work on various parts of the course.

Continued from previous page

into the breach and in *Progress in Education* he has worked through the Black Papers with remarkable zeal to claim that they contain "a staggering number of errors, inaccuracies and misrepresentations". He probes Black Paper analyses of standards, progressive primary schools, streaming, comprehensive schooling, truancy, violence and discipline. He has little difficulty in making an effective challenge, indeed, as he modestly writes, "it is so very easy to pick holes in the evidence". Also, it is much harder to make a positive case for the fruits of the innovations of the past quarter of a century.

Wright offers as a major conclusion:

"Researchers find little difference between the 'modern' and the 'traditional' approaches because there isn't any significant difference between these approaches."

Yet despite such humility (or perhaps because of it), Wright offers some realistic and practical suggestions concerning policies of admission, attendance and examinations; a programme of change that recognizes and takes account of the logical issues that surround the search for equality of opportunity. On these books, then, we can appraise of 25 years of intensive

industry by sociologists, teachers and politicians? Certainly they indicate a prodigious energy and a level of human concern that can hardly be exceeded in the entire history of education. But they also indicate how deep-seated is the uneven distribution of opportunity, and show us that, as far as we have done no more than peel off a few layers of a large onion. The point is strikingly made by the revised edition of King's *Education*, one of the spate of general texts of the sociology of education of the sixties which, though appropriately re-touched, is still able to reappear with most of its original content intact.

Above all, the books show us one of the fundamental reasons for our slow progress: the essentially political and ideological nature of the exercise of power, the making of decisions and the choices of teachers and even the very concepts that we use to guide us. They also alert us to the fact that, despite the noisiness of the writing, the left and of the right, the main political and ideological debate is centred on the development of our present social arrangements and not some historical or future alternative to them. These books strongly suggest that the work of education, then, at least the work of education, should celebrate its golden jubilee.

J. Exallston

22 Books/Science/Paperbacks

THE TIMES EDUCATIONAL SUPPLEMENT 20.1.78

Children's literature

Tooth and claw

Peter Fanning

Johnny Goodlooks. By John Tully. Methuen £3.45. 0 416 57550 1. The Battle of Billy's Pond. By Howard Thompson. Hutchinson £3.25. 0 09 131420 8. This School is Driving me Crazy. By Nat Heaton. Angus and Robertson £3.80. 0 207 95763 0.

"I sometimes wonder if there's anyone in this world who isn't a skiving leech? That's the 'Johnny Goodlooks' view of civilization. And if human nature is red in tooth and claw, each one of these books offers telling examples of the primitive underworld. But Johnny Goodlooks is the best of the bunch. Do not be put off by the glib sound of the title. It is a slick, fast-moving, class-ridden intrigue, where espionage and blackmail is the name of the game.

Cuckney orphan Goodlooks is picked up by Madame Tuff—a wealthy eccentric with a child fixation. And Johnny, she declares, is her own son Roddy. So who's gonna squeeze more dough out of Madame Tuff? Charley the butler, Uncle Fred Lord Nick, or Johnny's bunch of scrounging con-jantries? Amidst the jargon pack stalks our hero, Artful Dodger, with a heart of gold, who finally bludgeons his "Better Self" into submission and a kind of human clarity.

John Tully handles a disturbing situation with any of the best in the genre. Johnny acts as the "hardman" and reduces the sugar content in digestible proportions. This fly rate is highly for entertainment value. And the acid running comments serve to keep the urban fantasy in touch with reality.

But who needs realism anyway? This one will be a best-seller too.

Gushers

Patrick Moore

White Holes: The Begludging and End of Space. By John Gribbin. Paladin £1.50. 586 08263 8.

John Gribbin, a cosmologist who took his doctorate at Cambridge, has written several previous books on a variety of topics. *White Holes* is admittedly speculative—but it could hardly be anything else, because of the very nature of the subject.

During the past few years we have heard a great deal about black holes, which are assumed to be old, collapsed stars now pulling so strongly that not even light can escape from them; their gravitational force is too great. A White Hole is assumed to be exactly the opposite—a sort of "cosmic gusher", to use Gribbin's own term, from which material is pouring out into the universe. For instance, can this be the explanation of those enigmatic objects known as quosars, which are certainly very remote and which are presumably superluminal? And can there be a white hole gushing out matter in the centre of our own star-system or galaxy?

These are some of the subjects discussed in Gribbin's new book. It is divided into three parts, suitably entitled "Where do we come from?", "Where are we now?" and "Where are we going?" Among the chapter headings we find the highly relevant question "What makes a White Hole gush?" Gribbin takes the opportunity to present many of the older cosmological speculations as well as the rather bizarre new theories; he also emphasizes the debt owed by modern cosmology to the science-fiction writers of the past and present.

This is a really fascinating book. It is well written; it is full of information, and it is thought-provoking. The clarity of the text makes it accessible to the layman, but the more serious student will also find it valuable. Moreover, the price is eminently reasonable. I strongly recommend *White Holes*.

Regular visits to HMSO Bookstalls will find the nearest HMSO Bookstall in the Yellow Pages. If you cannot get to a Bookstall, send your order to HMSO by post. Send your order to HMSO (P.O. Box 100, London EC1 1DD).

HMSO BOOKS

23 Books/Mathematics/Children's Literature

Maths—early stages

Dorothy Carter

Teaching Primary Mathematics: strategy and evaluation. Edited by J. A. Glenn. Harper and Row £3.95 06 318071 5 £1.95 072 3.

This is a very readable book which endeavours to give guidance on strategies of teaching and on evaluation and assessment. It touches on many aspects of teaching primary mathematics, not devoting enough space for any one topic to be developed sufficiently to help a teacher struggling with a large group of children of a wide range of ability and at different stages of mathematical development.

The need to cover ground and check that learning has taken place is emphasized. A situation has to be carefully devised in order that the process of learning by discovery can take place. Reinforcement by practice is essential in order to

consolidate what has been learnt so that the newly acquired skills can be applied to problem solving.

Two crucial matters—language and pattern in number—are glossed over. Language is more than vocabulary. It is an indicator of the level at which a child is functioning. Pattern is the framework on which mathematical knowledge is built. Five levels of attainment, however, are properly listed: knowledge, skills, comprehension, application and inventiveness. The latter two are pertinent to problem solving.

Sensibly, the teacher is encouraged to give children the opportunity to devise their own solutions, albeit sometimes long-winded, to stimulate their interest and motivation and to avoid boredom. This leads to a broader syllabus than basic arithmetic. Practical work utilising the environment,

as well as games and puzzles, is strongly advocated. Happily the knowledge of tables is also included.

It is further suggested that the classroom must provide room to move about, work surfaces, storage, and display space. There is a useful list of manufactured and junk apparatus. In dealing with work-cards, the vital point is made that the written text must be within a child's individual reading skill, but there is no reference to the danger of working in isolation. Children might help to keep their own records.

Part two deals with a number of standardized tests, especially from the NFER—aptitude, attainment and diagnostic, bin concept pattern-perception, abstraction, and generalization. The references to the work of Bruner and Piaget, are probably more helpful to the teacher. The dictionary, "a child must develop at his own rate" is repeated and can be misinterpreted by the inexperienced teacher as "doing very little at a time".

Elementary, my dear teacher

F. W. Kellaway

Numberpower. By Keith Ellis. Heinemann £2.50. 434 90526 7.

This is a first-rate book, none the worse for the fact that some parts represent a recapitulation of material familiar to any mathematician or teacher of the subject who has ventured outside rigid examination constraints.

One's mind goes immediately to the 50-year-old *Companion to Elementary School Mathematics* by F. C. Boon, or the two books by

J. McKoy, *Odd Numbers and The World of Numbers*, published in the 1970s. More recent, and still available as Pelican books, are the works of W. W. Sawyer, and there are many "problem" books and others which could be cited. One suspects that McEllis is unaware of these titles, for they do not appear in his quite extensive bibliography.

He has, nevertheless, researched deeply, and his compilation is wide-ranging. The fascination of the potteries and relationships of numbers, of primes, proportion and permuta-

tion, of magic squares, statistics and probability—all these features and many more are pleasantly assembled and presented.

There is philosophical speculation also. Chapter headings such as "What time is our body?", "Is God a number?" and "Archetypes of order" are evocative. A discussion on why 13 is unlucky is controversial, and a conclusion that number, which "permeates the cosmos as salt flavours the sea" cannot be ignored, is amply substantiated throughout a thoroughly entertaining compilation.

65p OFF

Atlas Four

New cover New low price

Now £1.60

Special Atlas News

Secondary School Atlas Down in Price 1978 edition

— strong limp binding instead of hardback in 1977

— £1.60 instead of £2.25 in 1977

But still the same fully up-to-date relevant tool for 4th and 5th year Geography students

Its modern sensible approach to 'O' level topics has not changed. The graphic presentation of climate for example, the effective visual treatment of physiography, the comprehensive coverage of Britain, the Continents and the world in 176 pages

If you are thinking of looking into a fresh 'O' level atlas or if you just want to top up your Atlas Four stock, why not do it now?

Please send me an inspection copy of Atlas Four

Name _____

Address _____

Please return to:

Atlas Dept.

Longman Group Ltd. Longman House

Burnt Mill Harlow Essex CM20 2JE

Cartographic Dept.

Wm. Collins, Sons & Co. Ltd.

PO Box G4 0NB Glasgow

Collins & Longman Atlases

Science equipment review

JOHN A. BARKER and BOB FAIRBROTHER survey equipment on show at the Association for Science education's recent meeting

Biology band-wagon

Some interesting materials for biology teachers were on show at the manufacturers' exhibition at the annual meeting of the Association for Science Education, held this year at Liverpool University.

The environmental band-wagon is still rolling on. The quality and versatility of some of the new monitoring instruments and apparatus were high—both for field and laboratory use. Philip Harris introduced two new environmental thermometers: an environmental pH meter (B 18860/4) and an environmental light comparator (B 18580/9), both at £43.50. The light comparator has, as an accessory, a 3m extension pole with cable lead (B 18590/1) at £17, which allows light readings to be made in otherwise inaccessible locations.

Unilab Ltd have now developed and refined their environmental kit and modules. The system has been simplified so that a module consists of two units—a meter and a function unit with probe. A suitable stand is available for laboratory use and a range of modules can be transported in a fitted carrying-case for field work.

Offord Scientific Equipment Ltd were showing their electronic thermometer, designed for both field and laboratory use. Models cover different temperature ranges (OT1, 2 and 3 each at £36), and each

instrument is supplied with a probe and a carrying case. Desmon Ltd showed a new electronic thermometer (EA 657 at £41) with a probe (EA 657.1 at £7.60), which is a multi-range device covering -10degC to +110degC, -5degC to +55degC, with a 12degC span and a quoted accuracy of ± 1 degC for all ranges.

Ideas for Education are now marketing the Japanese "Gustec" air monitoring pump (7031 at £52.55) and testing tubes (at £5.75 a box), which enables a rapid and simple analysis of air samples for various pollutants to be made.

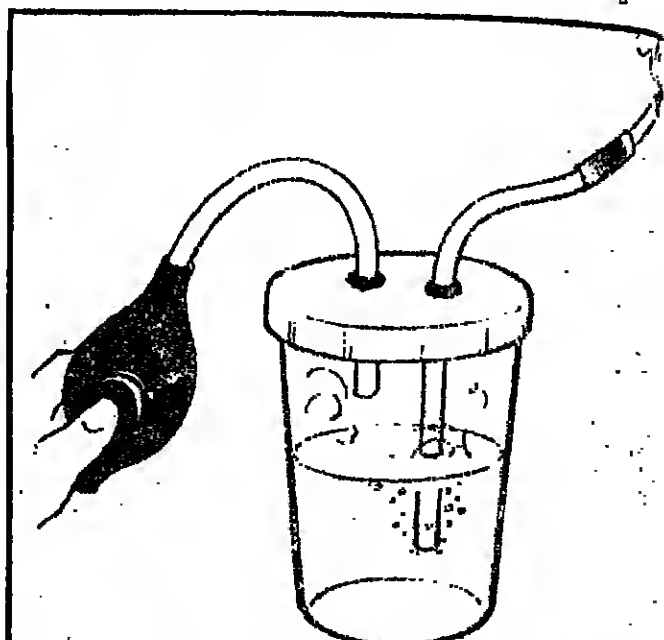
WPA Ltd had additions to their monitoring devices—a colorimeter unit (E1/COL at £39) for use with their monitoring kit and a separate oxygen meter in an attractive carrying case (O2 at £25).

Two firms have produced apparatus to investigate smoking. The Griffin and George Cigarette Tar Measuring Kit (YTB-520-M at £2.20) is a device which draws a current of air via a lighted cigarette through a small filter paper. The tar content of different brands can then be compared. Osmirid Educational's Snoker (8670 at £3.50) draws smoke from a cigarette through water to collect the tar. It is specially designed for use with the Think Well Teachers' Guide (G-13) from the Health Education Project (G-13).

There were several new additions to the current range of microscopes. Bausch and Lomb Ltd showed a new student microscope, the HSM, available with vertical or inclined body, which can rotate through 360°. A variety of objectives, condensers and illuminators is available. Griffin and George also introduced a new range of Olympus microscopes, the CH



Left: The Swift stereo magnifier. Right: The "Think Well" smoking kit from Osmirid.



system, all in the upper price range of the market. There are three basic stands with different illumination systems and a variety of components. Offord Scientific Equipment Ltd showed the OM series of microscopes, which again allow a variety of instruments to be built up from a basic plan. And Philip Harris showed a Swift stereo magnifier (B29400/3 at £33), a simple, relatively low cost model for field work.

Among the visual aids were

overhead projector transparencies from Philip Harris Biological: a set of 23 on evolution (A61150/0 at £30) and 25 on ecology (A60160/3 at £21). The ecology set has been prepared for use with an animation system to simulate directional flow. The final set of transparencies is a transparency atlas of histology (A60500/1 at £65). The atlas contains 120 illustrations of microscopic sections of tissues and organs reproduced in highly contrasting colours from original photographs.

Ideas for Education produced a range of models of anatomy of Japanese origin. New here, for example, the human stem (5824 at £8). Finally, the real of biology—live animals!—were shown by Gerard and Co, a glass Drosophila practicals and flies. They offer female with red eyes and yellow bodies. Thus, for the files can be used as a pain-making search.

Physics on a budget

E. J. Arnold had a number of inexpensive items on show including a Boyle's Law apparatus (SW303) costing £3.50, made from a polystyrene syringe with a wooden plunger on to which weights could be placed. The Miniflow Apparatus (SW294) converted gravitational potential energy into heat by having a weight pulling in a nylon string wrapped round a small aluminium cylinder. The catalogue suggests that it could be used to find the Joule calorie conversion factor but a better use might be to determine the specific heat capacity of aluminium. The apparatus costs £5.40 but a sensitive thermometer is an additional extra and the buyer would have to buy a special stand (SW293) at £9.40 or make one, which would be quite a simple matter.

A very effective and simple Spectrometer (SW292) costs £8.80. Visitors looked through a diffraction grating at a slit source of light and saw spectra against a scale drawn on a black background. The diffraction of the grating was such that 1cm on the scale represented an angle of 1°. A pack of 10 Periscopes (SW293) cost £4.99. They were made of silver, black, cardboard which could be folded into shape and stuck together. Mirrors, two for each periscope, were supplied, made of frosted glass. The finished periscopes were about 20cm long and at 50p each are a good buy.

Philip Harris were showing some simple resistance units (PS9740/0) 10 ohms in steps of 1 ohm (PS9740/3), 100 ohms in steps of 10 ohms (PS9740/5), 1,000 ohms in steps of 100 ohms. The 10 resistors in each unit were mounted in line and contact was made by plugging into sockets. Each unit cost £7.95.

A useful Spring Balances (Newtec Model) (Q11600/8) cost £10.95. It had a range of 40N in steps of 0.1N.

The Jordanhill Colour Mixing Set (P39970/5, £17.14) consisted of two 35mm projector slides, one containing the three primary colours each set in a circle, and the other the three secondary colours similarly arranged. The colours could be projected on to three mirrors and were then reflected back to overlap on a screen.

Wulden Precision Apparatus Ltd had a Decade Resistance Box (TR4, £21) which like the Philip Harris units was switchless but covered four ranges (units, tens, hundreds and thousands), each range being made up by combining four resistors (1, 2, 3, 9). The total range was 999 ohms in steps of one ohm to an accuracy of 1 per cent.

Several pH meters were on display. The C5 pH Meter at £40.50 gives readings from 0 to 14 pH with any combination electrode having E0 at pH7. The EL 17 electrode at £12.65 was recommended.

The C6 Portable pH Meter costing £53 came in a carrying case complete with the EL 17 electrode and had a similar specification to the C5 meter but a smaller scale. The C10 pH and millivoltmeter cost £53 without an electrode; pH was measurable in the range 0 to 14 pH to an accuracy of 0.1 pH using an EL 17 electrode the millivolt measurements were covered in two ranges, 0 to 1400 mV and 0 to 2800 mV.

Griffin and George had their usual wide range of good apparatus. Their range of power packs is now illustrated in a single brochure which is a very useful way of providing information and could usefully be done for other products such as meters and microscopes. Of the many items on show I shall mention two. There was a Gravimetric Constant Apparatus (XBF, 8017) costing £65.10. This was based on the Cavendish torsion balance method of measuring G and of particular note was the torsion wire soldered on to grub screws at each end for easy fitting to the barrel and torsion head.

The apparatus is supplied with two 100mm diameter lead spheres each 7.5 kg mass and 17mm made up suspension wires. A lamp and scale at an operating distance of 1.1 metre is required as an accessory.

The Signal Generator and the (XLB, £30) D10 B1 is easy to use, but compares well with apparatus elsewhere. It covers, square-wave and sine wave output in the range 10Hz to 100kHz and 10V d.c. to 10V a.c. It could deliver 4 watts into a load which is sufficient for appliances such as a vibrator amplifier voltage gain and it had an input impedance of 100k ohms.

White Electrical Instruments were exhibiting a very nice multi-range meter. Called a microtron it cost £145.50 but 33 ranges; d.c. from 5 μ A to 3 A and 3 V to 1,000 V, a.c. from 10 μ A to 10 A and 100 mV to 1,000 V. The meter was large and used on an OHP.

Finally I must mention the System Services who, as I mentioned earlier, are offering a specialist scientific electronic equipment, with a showing of a solid state light emitting diode (LED) light moving over a scale.



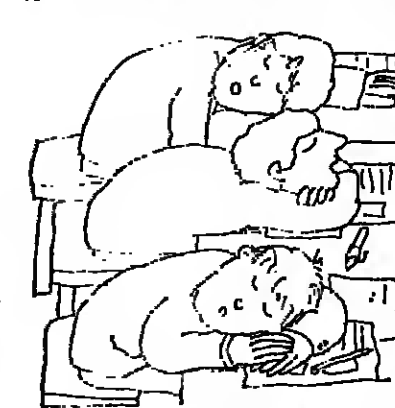
The Harris environmental kit.

Materials for mixing it

JOHN MAY on integrated science projects

A wide range of published material is now available for use in integrated science courses at all ages and abilities. This checklist may be of help when comparing materials:

- Will this material support the aims and objectives that you hope to achieve in your science course?
- How much does it emphasize: the acquisition of knowledge and understanding, the development of scientific skills and attitudes, the development of appropriate attitudes?
- Will the material give the view of science that you want your pupils to have?



Will the materials motivate ...?

For instance, will it present science as a useful activity that is important to everyone; that will give a better understanding of the world, and perhaps help pupils to lead happier lives?

Or will it present science as something that is done by scientists (and that often has little direct bearing on the pupils' everyday life)?

Or will it present science as a body of knowledge?

All views are valid but the first is important for all pupils, the second probably only for the relative few who will take up scientific occupations. In practice, most courses and materials include elements of all three but in different proportions.

Is the approach to learning science used in the material the approach you want to adopt in your course?

Most materials, and particularly textbooks, are relatively structural in their approach. They may not allow much opportunity for pupils to follow their own lines of thought but tend progressively in the direction the author's want the pupils to go.

Do not necessarily accept the levels stated in the book. Only you can say whether it will be suitable for your pupils.

How flexible will you want the material to be in use? Will this material be flexible enough?

A textbook can be used less flexibly than a collection of materials from which you can select. Workbooks, many not after the degree of flexibility you might at first expect, especially if bound into sets.

If you use these materials what will be the demands on: you, laboratory space, apparatus, technical assistance? Is there material for the pupils?

In most cases the answer will be yes, but consider the implications if you decide to use materials that are intended for the teacher only.

If there are pupils' texts or materials, is there a teacher's guide to accompany them?

At a minimum a teacher's guide should indicate the apparatus needed for activities. Does the teacher's guide state the aims and objectives of the material?

Look at the way colour is used. The misuse of a second colour can convey false information. For example, look for "red" water or "green" sulphuric acid.

Does the material encourage the students to write to do more? Are there suggestions for follow-up or extension work?

Is the language level appropriate?

If the children cannot understand the non-technical language in the text, they are going to have difficulty with the more complicated scientific terminology.

A preliminary selection can be made from the details given below. Inspection copies can be obtained and looked at in detail.



Is the material written for pupils of the right age and ability?

Look at the way, for example, electricity is dealt with, or forces, or reproduction. Does it deal adequately with the mass-weight problem? Does it use SI units?

Do you think the material will motivate your pupils?

Material with a lot of human interest is likely to encourage a higher degree of motivation than material that is impersonal.

What is the purpose of the illustrations? Are they merely decorative or can they be used as a basis for discussion?

Look at the way colour is used. The misuse of a second colour can convey false information. For example, look for "red" water or "green" sulphuric acid.

Does the material encourage the students to write to do more? Are there suggestions for follow-up or extension work?

Is the language level appropriate?

If the children cannot understand the non-technical language in the text, they are going to have difficulty with the more complicated scientific terminology.

A preliminary selection can be made from the details given below. Inspection copies can be obtained and looked at in detail.

Look at the way, for example, electricity is dealt with, or forces, or reproduction. Does it deal adequately with the mass-weight problem? Does it use SI units?

Do you think the material will motivate your pupils?

Material with a lot of human interest is likely to encourage a higher degree of motivation than material that is impersonal.

What is the purpose of the illustrations? Are they merely decorative or can they be used as a basis for discussion?

Look at the way colour is used. The misuse of a second colour can convey false information. For example, look for "red" water or "green" sulphuric acid.

Does the material encourage the students to write to do more? Are there suggestions for follow-up or extension work?

Is the language level appropriate?

If the children cannot understand the non-technical language in the text, they are going to have difficulty with the more complicated scientific terminology.

A preliminary selection can be made from the details given below. Inspection copies can be obtained and looked at in detail.

Look at the way, for example, electricity is dealt with, or forces, or reproduction. Does it deal adequately with the mass-weight problem? Does it use SI units?

Do you think the material will motivate your pupils?

Material with a lot of human interest is likely to encourage a higher degree of motivation than material that is impersonal.

What is the purpose of the illustrations? Are they merely decorative or can they be used as a basis for discussion?

Look at the way colour is used. The misuse of a second colour can convey false information. For example, look for "red" water or "green" sulphuric acid.

Does the material encourage the students to write to do more? Are there suggestions for follow-up or extension work?

Is the language level appropriate?

If the children cannot understand the non-technical language in the text, they are going to have difficulty with the more complicated scientific terminology.

A preliminary selection can be made from the details given below. Inspection copies can be obtained and looked at in detail.

new publications

DIAGNOSTIC TESTING IN ADVANCED BIOLOGY

R. E. Lister

The items and diagnostic notes in the Complete Volume are intended for use in teaching situations as stimulus material for students and as feedback for teachers. With this aim in view, the items have been written at a level of difficulty which is likely to stretch the capabilities of students.

The advantages of these tests are that they apply the knowledge the student has to new situations. The record of achievement built up through testing the student's skills across various topics should provide the information for compiling student profiles. Also the categories used are related to Bloom's Taxonomy of Educational Objectives in so far as these can be applied in multiple choice items.

*Test Volume £1.45 0 340 21226 8
*Complete Volume £2.25 0 340 21227 6

Publishing March 1978

KEYS TO CHEMISTRY

Graham C. Hill

This new series is designed to cover the complete chemistry course to CSE (Book 2) and GCE 'O' level (Book 2 alpha). Key facts are summarized at the end of each chapter, thus providing material for easy revision. The books are attractively presented with illustrations in two colours and photographs. The Practical Books, in the form of Spirit Duplicating Masters, eliminate laborious writing-up of experiments while covering the complete practical course for CSE and GCE 'O' level.

Recently published
*Pupil's Book 2 alpha £2.95 0 340 19073 6
Already available
*Pupil's Book 1 £1.15 0 340 19072 8
Teacher's Book 1 £1.50 0 340 18075 7
Practical Book 1 £6.50 + VAT 0 340 19250 X
*Pupils Book 2 £2.95 0 340 20560 1
Teacher's Book 2 £4.45 0 340 20561 X
Practical Book 2 £13.50 + VAT 0 340 19251 8

Publishing February, 1978
Teacher's Book 2 alpha £4.15 0 340 19073 6

A NEW PHYSICS

D. Bryant and D. C. Korshow

Written by two people with wide teaching experience in secondary schools, this important new book is aimed at students studying physics up to GCE 'O' level and CSE.

The students learning is guided in a logical yet flexible sequence by—a readable text with emphasis on the main points—a "Do you know?" section at the end of each chapter—a quick reference index (covering Laws, Formulae and Equations, and Definitions and Statements) in addition to the main index.

Its main features include illustrations in two colours for extra clarity, SI Units with an explanation of the system, a large selection of questions from past GCE and CSE examination papers and a price which should be within the reach of all schools.

*Limp £3.60 0 340 15714 3
Publishing March, 1978

*Teachers are invited to write for inspection copies.

Hodder & Stoughton

Dopt. E1376, P.O. Box 702, Mill Road, Dunton Green, Sevenoaks, Kent TN13 2YD.

Oxford University Press

Physical Chemistry

P. W. Atkins

This completely new textbook of physical chemistry has been written as a basic course text suitable for college and university courses throughout the world. Its emphasis is on the explanation of concepts and on showing how qualitative physical ideas are turned into quantitative, testable theories. Special attention is paid to the simplification, without loss of rigour, of conventional mathematical arguments, and to the explanation of their physical basis. Nearly 200 worked examples show how calculations are actually done. Organized and written to suit a wide variety of courses, this treatment of physical chemistry will be the most up-to-date available. Illustrated £15 paper covers £7.95.

Basic Chemical Thermodynamics

E. Brian Smith

The treatment of the first edition has been retained in this introduction to a subject that students of chemistry often find most difficult. The author has clarified the presentation, and corrected and improved the text. Emphasis is again placed on a clear explanation of the underlying concepts of thermodynamics; the traditional approaches to the subject are modified so that the reader is led from an examination of equilibrium in the everyday world of mechanical objects to a thorough understanding of the factors that determine equilibrium in chemical systems. The results are applied to a wide range of physicochemical problems. The book also gives a brief introduction to the difficult problems of non-ideal solutions and the concept of activity. Second edition £8 paper covers £2.25 Oxford Chemistry Series.

The Foundations of Mathematics

Ian Stewart and David Tall

This is a book for readers in transition from school mathematics to the fully fledged type of thinking used by professional mathematicians. It should prove useful to first-year students in universities, polytechnics, and colleges, and to sixth-formers contemplating further study. £7.50 paper covers £3.95.

A Course with Impact PHYSICAL SCIENCE

W. BOLTON

The book is divided into four sections, giving a coherent sequence of topics presented in such a form as to be suitable for use either with an integrated syllabus or in situations where the physical and chemistry are separately taught.

Section A introduces the fundamental concepts of physical science: matter and forces. Sections B and C build on these ideas, developing the twin themes of patterns and energy. Section D is a clear discussion of atomic and molecular structure, providing a unifying end-point to the course.

Each chapter concludes with a summary of important definitions and laws, followed by a selection of problems and investigations, graded for pupils with a range of abilities.

192 pages. 250 x 190 mm. 1977.

ISBN 0 216 90424 2

£3.15

The author has been associated with both the Nuffield Science Teaching Project and the Schools Council Integrated Science Project; he has also acted as consultant to a number of UNESCO science teaching projects in the Third World.

GEOLOGY

Andrew McLellan, Principal Teacher, Waid Academy
Anstruther

This book covers the requirements of the various GSE, O Level and O Grade syllabuses in geology. These syllabuses contain a considerable element of common ground, and the author's main aim has been to present this core material in as simple a manner as possible. The book will also be of use to pupils following non-examination courses. The text is clearly and concisely written and is copiously illustrated with diagrams and photographs. A modern, scientific approach to the subject is followed throughout which demonstrates the inter-relationship between geology, geography and the other sciences and also stresses the environmental relevance of geology. Experiments are suggested where possible.

ISBN 0 216 90447 1

£2.95

BLACKIE AND SON LIMITED

Bishopbriggs, Glasgow

BIOLOGY? THINK HARRIS

Where else can you find such a comprehensive range of teaching aids especially for the biologist but in the 1977 Philip Harris/Philip Harris Biological catalogue?

Microslides, Colour Slides, Living Cultures, Specimens, Skeletons, Bioplasts, Kits & Sets, Filmstrips and Loops, Overhead Transparencies, Charts, Books Apparatus and Equipment.

All your needs in one comprehensive catalogue and with everything well indexed and cross referenced.

Don't miss the many exciting new additions to our range.

For further details
write HARRIS

Philip Harris Biological Ltd. 22
Oldbury, West Bromwich, Avon, Telephone 0924 430033, Telex 447088

FOR SALE AND WANTED

If you have something to sell or want to buy, please write to the Editor, The Times Educational Supplement, 1, The Quadrant, London WC2N 2AU. There are over half a million of these and your advertisement could cost as little as 25p.

If you are interested in the following items, please write to the Editor, The Times Educational Supplement, 1, The Quadrant, London WC2N 2AU. There are over half a million of these and your advertisement could cost as little as 25p.

camera talks

a series on
TEACHING AND
LEARNING
MICROLOGY

Continued from previous page
Stage 2 adopts a more formal approach. The Teacher's Guide includes the aims and objectives of the course, details of apparatus requirements and answers to questions.

Nuffield Combined Science—Themes for the Middle Years

General editor: Clifford Bingham, published for the Nuffield Foundation by Longman. Suggested age range: 9 to 13. First six to be published: Calcutt; Out of Doors; Examining and Measuring; Sorting; Movement; Water.

Each pack contains four sets of one theme. Each theme consists of four study cards, each with four associated activity cards. Cost of a pack—£8.95.

Themes for the Middle Years is a welcome extension to the original Nuffield Combined Science Project materials, first published in 1970. The new material is designed for a wider age and ability range than the original materials.

The themes are based on a topic and provide a stimulus for pupils' further activities together with suggestions of follow-up work. The study cards, with one side in full colour, are designed to act as a starter—promoting discussion and thought. The associated activity cards provide details of investigations for the pupils to carry out.

Details of the trials of the materials are to be found in Education in Science, the Bulletin of the Association for Science Education, September 1976. Other titles in the series will include: Science, Flowers, Air, Structure, Ourselves, Plastics, Heating Things, Forces and Fuels, Metals, Insects, Communications, What is in the Air?, Food, Clothes, Patterns in Movement, Light, Electricity, Using electricity.

Avon Resources for Learning Development Unit Science Project

Project editor, Don Fuster. The project operates a subscription system with several options. Full details are in the catalogue. There is no inspection service but a sample of typical materials will be sent for £1.50. Suggested age range, 11-13 years.

This project is a treasure chest for teachers lacking for material in support of their courses. It has been designed with independent learning much in mind. The material is being produced to fit into a framework of 13 sections: Air, Looking for patterns, How living things begin, Electricity, Water, Small things, Estimating and measuring insects, Forces and Movement, The Earth, How to go..., Heating, Natural history.

The materials available include worksheets, study guide booklets, background reading, games and simulations, filmstrips and slides, audio cassettes and specimens.

The L.A.M.P. Project
Coordinated by John Bowers, material published by the Association for Science Education. Suggested age range, 14 to 16 years. Topic briefs published as follows:

Photography, 60p; Materials, £1.20; Gardening, 70p; Fuels, 80p; Heating and Lighting a home, 80p; Pollution, 70p; Health and hygiene, £1.75; Space travel, £1.50; The sea, 75p.

This material is written for the least academically motivated pupils by teachers, for teachers. It is printed and published by the ASE. Each topic brief consists of suggested activities and background information and pro-forma worksheets.

Copyright has been waived on the worksheets so teachers can get them duplicated in their own schools. This is one of the cheapest ways of obtaining materials for use by pupils and does not involve a large initial outlay for texts or other materials.

The L.A.M.P. project continues with groups in different parts of the country meeting regularly to exchange views and produce further material for publication. Details of the different groups can be obtained from John Bowers, Ryburn County Secondary School, Sowerby Bridge, Halifax.

Nuffield Working with Science Project

Organized by Ken Wild. Published by Longman Resources Unit. Suggested age range, 16 plus. Units available: Interpreting, Glass, Motor Car, Noise, Photography, Pollution, Pottery, Questioning.

Prejudice and superstition; Recycling; Slimming; Water shortage; 2000; Fair mini mules; Teacher's Guide 1; Teacher's Note A; Teacher's Notes B.

Available as a subscription scheme—details from Longman Resources Unit, York.

This is the first batch of material to come from the Working with Science Project which, like the Nuffield 16-plus Project, was set up to provide science-based material for use with ROSLA students. Although written with the non-academic 16-year-old in mind the materials are probably more suitable for more academic groups. They could, for example, be used as supporting materials for the several conventional science A level programmes now available. The units are likely to be of value as well in Certificate of Extended Education courses.

The units are about 28 pages in length and represent about half a term's work. The approach is essentially practical with students working individually or in groups on a variety of projects.

A progress report of this project appeared in The School Science Review volume 56, No 211, March 1977.

C.E.S.T.S. (Curriculum and Examination System in Integrated Science)

Coordinated by Beta Schenfeld, supported by the Nuffield Foundation and based at the Centre for Science Education, Chelsea College. Suggested age range, 13-16 years.

This project is developing a curriculum plan in science based on Nuffield Secondary Science, and SCISP patterns. The aim is to provide programmes of work as a basis for a common system of examination for the whole ability range involved in 16-plus exams.

A third-year course is suggested which could form the basis for subsequent work of a wide variety. The project has adopted a modular approach with the modules fitting into an overall network.

The exam system is intended to provide for single or double certification at 16-plus in integrated science; to provide a range of choices by examining at three different levels; to provide a common system based on closely related courses; to provide a common exam entry can be deferred for as long as possible.

C.E.S.T.S. is still in the development stage with sample materials on trial. Further information can, however, be obtained from: Mrs Beta Schenfeld, Coordinator, Centre for Science Education, Chelsea College, Bridges Place, London, SW6 4LR.

Scottish Integrated Science New Science Worksheets

Written by a working party set up by the Scottish Central Committee on Science, published by Heinemann. Suggested age range: first two years of secondary school. Single pupil set of sheets for Sections 1 to 8 (containing one copy of each core, Extension A, and Extension B sheet), £5p.

Single pupil set of sheets for sections 9-15 (containing one copy of each Core, Extension A, and Extension B sheet), 65p.

Cards for sections 1-8 (one copy of each Extension A card), £1.25; cards for sections 9, 11-15; Teacher's Guide for sections 1-8, £2.50; Teacher's Guide for sections 9-15, £2.50.

The original worksheets for the course described in Curriculum Paper No 7 Science for Causal Education (HMSO 1969, 65p) have been completely revised and tested in schools. The revised scheme provides an integrated science course for the first two years of secondary school comprising: a basic core of material for all pupils; revision and extension material for the more able; teachers' guides.

The materials include worksheets, work cards containing extensive guides, one for each of the two years, containing the objectives of the course and notes on the teaching of the material. The teachers' guides also contain blank master copies of information cards and background material from which teachers can print their own copies.

Other Courses

The materials and course described below have been available for some time, but are included to

provide a more complete picture of the integrated science scene.

Units related to stages in the educational development of pupils to plan work in science for pupils in the 5-11 age range, based on a discovery approach.

With objectives in mind—suitable reading for all science teachers. 26 units in total, cost £150 in 11, each.

Nuffield Combined Science
Published by Longman, Suggested age range, 11-13 years. Teacher's Guide 1, £4.20; Teacher's Guide 2, £3.90; Teacher's Guide 3, £4.20; Activities Pack 1, £2.25; Activities Pack 2, £2.13.

A large number of film loops support the course is also available. Science for the 70s

Published by Heinemann, Suggested age range, first two years of secondary school. Book 1, £1.70; Teacher's Guide 1, £2.00; Teacher's Guide 2, £2.00.

This course, first published in 1971, was brought out in a new edition in full colour in 1973. Nuffield Secondary Science Project

Published by Longman. Suggested age range: 13-16, for pupils taking a CCE O level in Science. Theme 1, The Interdependence of Living Things, £2.40; Theme 2, Continuity of Life, £3.15; Theme 3, The Earth and the Universe, £2.40; Theme 4, Harnessing energy, £2.40; Theme 5, The extension of sense perception, £2.40; Theme 6, Matter, £2.40; Theme 7, Using matter, £3.15; Theme 8, The earth and place in the universe, £3.15; Theme 9, The earth and place in the universe, £3.15; Theme 10, The earth and place in the universe, £3.15; Theme 11, The earth and place in the universe, £3.15; Theme 12, The earth and place in the universe, £3.15; Theme 13, The earth and place in the universe, £3.15; Theme 14, The earth and place in the universe, £3.15; Theme 15, The earth and place in the universe, £3.15; Theme 16, The earth and place in the universe, £3.15; Theme 17, The earth and place in the universe, £3.15; Theme 18, The earth and place in the universe, £3.15; Theme 19, The earth and place in the universe, £3.15; Theme 20, The earth and place in the universe, £3.15; Theme 21, The earth and place in the universe, £3.15; Theme 22, The earth and place in the universe, £3.15; Theme 23, The earth and place in the universe, £3.15; Theme 24, The earth and place in the universe, £3.15; Theme 25, The earth and place in the universe, £3.15; Theme 26, The earth and place in the universe, £3.15; Theme 27, The earth and place in the universe, £3.15; Theme 28, The earth and place in the universe, £3.15; Theme 29, The earth and place in the universe, £3.15; Theme 30, The earth and place in the universe, £3.15; Theme 31, The earth and place in the universe, £3.15; Theme 32, The earth and place in the universe, £3.15; Theme 33, The earth and place in the universe, £3.15; Theme 34, The earth and place in the universe, £3.15; Theme 35, The earth and place in the universe, £3.15; Theme 36, The earth and place in the universe, £3.15; Theme 37, The earth and place in the universe, £3.15; Theme 38, The earth and place in the universe, £3.15; Theme 39, The earth and place in the universe, £3.15; Theme 40, The earth and place in the universe, £3.15; Theme 41, The earth and place in the universe, £3.15; Theme 42, The earth and place in the universe, £3.15; Theme 43, The earth and place in the universe, £3.15; Theme 44, The earth and place in the universe, £3.15; Theme 45, The earth and place in the universe, £3.15; Theme 46, The earth and place in the universe, £3.15; Theme 47, The earth and place in the universe, £3.15; Theme 48, The earth and place in the universe, £3.15; Theme 49, The earth and place in the universe, £3.15; Theme 50, The earth and place in the universe, £3.15; Theme 51, The earth and place in the universe, £3.15; Theme 52, The earth and place in the universe, £3.15; Theme 53, The earth and place in the universe, £3.15; Theme 54, The earth and place in the universe, £3.15; Theme 55, The earth and place in the universe, £3.15; Theme 56, The earth and place in the universe, £3.15; Theme 57, The earth and place in the universe, £3.15; Theme 58, The earth and place in the universe, £3.15; Theme 59, The earth and place in the universe, £3.15; Theme 60, The earth and place in the universe, £3.15; Theme 61, The earth and place in the universe, £3.15; Theme 62, The earth and place in the universe, £3.15; Theme 63, The earth and place in the universe, £3.15; Theme 64, The earth and place in the universe, £3.15; Theme 65, The earth and place in the universe, £3.15; Theme 66, The earth and place in the universe, £3.15; Theme 67, The earth and place in the universe, £3.15; Theme 68, The earth and place in the universe, £3.15; Theme 69, The earth and place in the universe, £3.15; Theme 70, The earth and place in the universe, £3.15; Theme 71, The earth and place in the universe, £3.15; Theme 72, The earth and place in the universe, £3.15; Theme 73, The earth and place in the universe, £3.15; Theme 74, The earth and place in the universe, £3.15; Theme 75, The earth and place in the universe, £3.15; Theme 76, The earth and place in the universe, £3.15; Theme 77, The earth and place in the universe, £3.15; Theme 78, The earth and place in the universe, £3.15; Theme 79, The earth and place in the universe, £3.15; Theme 80, The earth and place in the universe, £3.15; Theme 81, The earth and place in the universe, £3.15; Theme 82, The earth and place in the universe, £3.15; Theme 83, The earth and place in the universe, £3.15; Theme 84, The earth and place in the universe, £3.15; Theme 85, The earth and place in the universe, £3.15; Theme 86, The earth and place in the universe, £3.15; Theme 87, The earth and place in the universe, £3.15; Theme 88, The earth and place in the universe, £3.15; Theme 89, The earth and place in the universe, £3.15; Theme 90, The earth and place in the universe, £3.15; Theme 91, The earth and place in the universe, £3.15; Theme 92, The earth and place in the universe, £3.15; Theme 93, The earth and place in the universe, £3.15; Theme 94, The earth and place in the universe, £3.15; Theme 95, The earth and place in the universe, £3.15; Theme 96, The earth and place in the universe, £3.15; Theme 97, The earth and place in the universe, £3.15; Theme 98, The earth and place in the universe, £3.15; Theme 99, The earth and place in the universe, £3.15; Theme 100, The earth and place in the universe, £3.15; Theme 101, The earth and place in the universe, £3.15; Theme 102, The earth and place in the universe, £3.15; Theme 103, The earth and place in the universe, £3.15; Theme 104, The earth and place in the universe, £3.15; Theme 105, The earth and place in the universe, £3.15; Theme 106, The earth and place in the universe, £3.15; Theme 107, The earth and place in the universe, £3.15; Theme 108, The earth and place in the universe, £3.15; Theme 109, The earth and place in the universe, £3.15; Theme 110, The earth and place in the universe, £3.15; Theme 111, The earth and place in the universe, £3.15; Theme 112, The earth and place in the universe, £3.15; Theme 113, The earth and place in the universe, £3.15; Theme 114, The earth and place in the universe, £3.15; Theme 115, The earth and place in the universe, £3.15; Theme 116, The earth and place in the universe, £3.15; Theme 117, The earth and place in the universe, £3.15; Theme 118, The earth and place in the universe, £3.15; Theme 119, The earth and place in the universe, £3.15; Theme 120, The earth and place in the universe, £3.15; Theme 121, The earth and place in the universe, £3.15; Theme 122, The earth and place in the universe, £3.15; Theme 123, The earth and place in the universe, £3.15; Theme 124, The earth and place in the universe, £3.15; Theme 125, The earth and place in the universe, £3.15; Theme 126, The earth and place in the universe, £3.15; Theme 127, The earth and place in the universe, £3.15; Theme 128, The earth and place in the universe, £3.15; Theme 129, The earth and place in the universe, £3.15; Theme 130, The earth and place in the universe, £3.15; Theme 131, The earth and place in the universe, £3.15; Theme 132, The earth and place in the universe, £3.15; Theme 133, The earth and place in the universe, £3.15; Theme 134, The earth and place in the universe, £3.15; Theme 135, The earth and place in the universe, £3.15; Theme 136, The earth and place in the universe, £3.15; Theme 137, The earth and place in the universe, £3.15; Theme 138, The earth and place in the universe, £3.15; Theme 139, The earth and place in the universe, £3.15; Theme 140, The earth and place in the universe, £3.15; Theme 141, The earth and place in the universe, £3.15; Theme 142, The earth and place in the universe, £3.15; Theme 143, The earth and place in the universe, £3.15; Theme 144, The earth and place in the universe, £3.15; Theme 145, The earth and place in the universe, £3.15; Theme 146, The earth and place in the universe, £3.15; Theme 147, The earth and place in the universe, £3.15; Theme 148, The earth and place in the universe, £3.15; Theme 149, The earth and place in the universe, £3.15; Theme 150, The earth and place in the universe, £3.15; Theme 151, The earth and place in the universe, £3.15; Theme 152, The earth and place in the universe, £3.15; Theme 153, The earth and place in the universe, £3.15; Theme 154, The earth and place in the universe, £3.15; Theme 155, The earth and place in the universe, £3.15; Theme 156, The earth and place in the universe, £3.15; Theme 157, The earth and place in the universe, £3.15; Theme 158, The earth and place in the universe, £3.15; Theme 159, The earth and place in the universe, £3.15; Theme 160, The earth and place in the universe, £3.15; Theme 161, The earth and place in the universe, £3.15; Theme 162, The earth and place in the universe, £3.15; Theme 163, The earth and place in the universe, £3.15; Theme 164, The earth and place in the universe, £3.15; Theme 165, The earth and place in the universe, £3.15; Theme 166, The earth and place in the universe, £3.15; Theme 167, The earth and place in the universe, £3.15; Theme 168, The earth and place in the universe, £3.15; Theme 169, The earth and place in the universe, £3.15; Theme 170, The earth and place in the universe, £3.15; Theme 171, The earth and place in the universe, £3.15; Theme 172, The earth and place in the universe, £3.15; Theme 173, The earth and place in the universe, £3.15; Theme 174, The earth and place in the universe, £3.15; Theme 175, The earth and place in the universe, £3.15; Theme 176, The earth and place in the universe, £3.15; Theme 177, The earth and place in the universe, £3.15; Theme 178, The earth and place in the universe, £3.15; Theme 179, The earth and place in the universe, £3.15; Theme 180, The earth and place in the universe, £3.15; Theme 181, The earth and place in the universe, £3.15; Theme 182, The earth and place in the universe, £3.15; Theme 183, The earth and place in the universe, £3.15; Theme 184, The earth and place in the universe, £3.15; Theme 185, The earth and place in the universe, £3.15; Theme 186, The earth and place in the universe, £3.15; Theme 187, The earth and place in the universe, £3.15; Theme 188, The earth and place in the universe, £3.15; Theme 189, The earth and place in the universe, £3.15; Theme 190, The earth and place in the universe, £3.15; Theme 191, The earth and place in the universe, £3.15; Theme 192, The earth and place in the universe, £3.15; Theme 193, The earth and place in the universe, £3.15; Theme 194, The earth and place in the universe, £3.15; Theme 195, The earth and place in the universe, £3.15; Theme 196, The earth and place in the universe, £3.15; Theme 197, The earth and place in the universe, £3.15; Theme 198, The earth and place in the universe, £3.15; Theme 199, The earth and place in the universe, £3.15; Theme 200, The earth and place in the universe, £3.15; Theme 201, The earth and place in the universe, £3.15; Theme 202, The earth and place in the universe, £3.15; Theme 203, The earth and place in the universe, £3.15; Theme 204, The earth and place in the universe, £3.15; Theme 205, The earth and place in the universe, £3.15; Theme 206, The earth and place in the universe, £3.15; Theme 207, The earth and place in the universe, £3.15; Theme 208, The earth and place in the universe, £3.15; Theme 209, The earth and place in the universe, £3.15; Theme 210, The earth and place in the universe, £3.15; Theme 211, The earth and place in the universe, £3.15; Theme 212, The earth and place in the universe, £3.15; Theme 213, The earth and place in the universe, £3.15; Theme 214, The earth and place in the universe, £3.15; Theme 215, The earth and place in the universe, £3.15; Theme 216, The earth and place in the universe, £3.15; Theme 217, The earth and place in the universe, £3.15; Theme 218, The earth and place in the universe, £3.15; Theme 219, The earth and place in the universe, £3.15; Theme 220, The earth and place in the universe, £3.15; Theme 221, The earth and place in the universe, £3.15; Theme 222, The earth and place in the universe, £3.15; Theme 223, The earth and place in the universe, £3.15; Theme 224, The earth and place in the universe, £3.15; Theme 225, The earth and place in the universe, £3.15; Theme 226, The earth and place in the universe, £3.15; Theme 227, The earth and place in the universe, £3.15; Theme 228, The earth and place in the universe, £3.15; Theme 229, The earth and place in the universe, £3.15; Theme 230, The earth and place in the universe, £3.15; Theme 231, The earth and place in the universe, £3.15; Theme 232, The earth and place in the universe, £3.15; Theme 233, The earth and place in the universe, £3.15; Theme 234, The earth and place in the universe, £3.15; Theme 235, The earth and place in the universe, £3.15; Theme 236, The earth and place in the universe, £3.15; Theme 237, The earth and place in the universe, £3.15; Theme 238, The earth and place in the universe, £3.15; Theme 239, The earth and place in the universe, £3.15; Theme 240, The earth and place in the universe, £3.15; Theme 241, The earth and place in the universe, £3.15; Theme 242, The earth and place in the universe, £3.15; Theme 243, The earth and place in the universe, £3.15; Theme 244, The earth and place in the universe, £3.15; Theme 245, The earth and place in the universe, £3.15; Theme 246, The earth and place in the universe, £3.15; Theme 247, The earth and place in the universe, £3.15; Theme 248, The earth and place in the universe, £3.15; Theme 249, The earth and place in the universe, £3.15; Theme 250, The earth and place in the universe, £3.15; Theme 251, The earth and place in the universe, £3.15; Theme 252, The earth and place in the universe, £3.15; Theme 253, The earth and place in the universe, £3.15; Theme 254, The earth and place in the universe, £3.15; Theme 255, The earth and place in the universe, £3.15; Theme 256, The earth and place in the universe, £3.15; Theme 257, The earth and place in the universe, £3.15; Theme 258, The earth and place in the universe, £3.15; Theme 259, The earth and place in the universe, £3.15; Theme 260, The earth and place in the universe, £3.15; Theme 261, The earth and place in the universe, £3.15; Theme 262, The earth and place in the universe, £3.15; Theme 263, The earth and place in the universe, £3.15; Theme 264, The earth and place in the universe, £3.15; Theme 265, The earth and place in the universe, £3.15; Theme 266, The earth and place in the universe, £3.15; Theme 267, The earth and place in the universe, £3.15; Theme 268, The earth and place in the universe, £3.15; Theme 269, The earth and place in the universe, £3.15; Theme 270, The earth and place in the universe, £3.15; Theme 271, The earth and place in the universe, £3.15; Theme 272, The earth and place in the universe, £3.15; Theme 273, The earth and place in the universe, £3.15; Theme 274, The earth and place in the universe, £3.15; Theme 275, The earth and place in the universe, £3.15; Theme 276, The earth and place in the universe, £3.15; Theme 277, The earth and place in the universe, £3.15; Theme 278, The earth and place in the universe, £3.15; Theme 279, The earth and place in the universe, £3.15; Theme 280, The earth and place in the universe, £3.15; Theme 281, The earth and place in the universe, £3.15; Theme 282, The earth and place in the universe, £3.15; Theme 283, The earth and place in the universe, £3.15; Theme 284, The earth and place in the universe, £3.15; Theme 285, The earth and place in the universe, £3.15; Theme 286, The earth and place in the universe, £3.15; Theme 287, The earth and place in the universe, £3.15; Theme 288, The earth and place in the universe, £3.15; Theme 289, The earth and place in the universe, £3.15; Theme 290, The earth and place in the universe, £3.15; Theme 291, The earth and place in the universe, £3.15; Theme 292, The earth and place in the universe, £3.15; Theme 293, The earth and place in the universe, £3.15; Theme 294, The earth and place in the universe, £3.15; Theme 295, The earth and place in the universe, £3.15; Theme 296, The earth and place in the universe, £3.15; Theme 297, The earth and place in the universe, £3.15; Theme 298, The earth and place in the universe, £3.15; Theme 299, The earth and place in the universe, £3.15; Theme 300, The earth and place in the universe, £3.15; Theme 301, The earth and place in the universe, £3.15; Theme 302, The earth and place in the universe, £3.15; Theme 303, The earth and place in the universe, £3.15; Theme 304, The earth and place in the universe, £3.15; Theme 305, The earth and place in the universe, £3.15; Theme 306, The earth and place in the universe, £3.15; Theme 307, The earth and place in the universe, £3.15; Theme 308, The earth and place in the universe, £3.15; Theme 309, The earth and place in the universe, £3.15; Theme 310, The earth and place in the universe, £3.15; Theme 311, The earth and place in the universe, £3.15; Theme 312, The earth and place in the universe, £3.15; Theme 313, The earth and place in the universe, £3.15; Theme 314, The earth and place in the universe, £3.15; Theme 315, The earth and place in the universe, £3.15; Theme 316, The earth and place in the universe, £3.15; Theme 317, The earth and place in the universe, £3.15; Theme 318, The earth and place in the universe, £3.15; Theme 319, The earth and place in the universe, £3.15; Theme 320, The earth and place in the universe, £3.15; Theme 321, The earth and place in the universe, £3.15; Theme 322, The earth and place in the universe, £3.15; Theme 323, The earth and place in the universe, £3.15; Theme 324, The earth and place in the universe, £3.15; Theme 325, The earth and place in the universe, £3.15; Theme 326, The earth and place in the universe, £3.15; Theme 327, The earth and place in the universe, £3.15; Theme 328, The earth and place in the universe, £3.15; Theme 329, The earth and place in the universe, £3.15; Theme 330, The earth and place in the universe, £3.15; Theme 331, The earth and place in the universe, £3.15; Theme 332, The earth and place in the universe, £3.15; Theme 333, The earth and place in the universe, £3.15; Theme 334, The earth and place in the universe, £3.15; Theme 335, The earth and place in the universe, £3.15; Theme 336, The earth and place in the universe, £3.15; Theme 337, The earth and place in the universe, £3.15; Theme 338, The earth and place in the universe, £3.15; Theme 339, The earth and place in the universe, £3.15; Theme 340, The earth and place in the universe, £3.15; Theme 341, The earth and place in the universe, £3.15; Theme 342, The earth and place in the universe, £3.15; Theme 343, The earth and place in the universe, £3.15; Theme 344, The earth and place in the universe, £3.15; Theme 345, The earth and place in the universe, £3.15; Theme 346, The earth and place in the universe, £3.15; Theme 347, The earth and place in the universe, £3.15; Theme 348, The earth and place in the universe, £3.15; Theme 349, The earth and place in the universe, £3.15; Theme 350, The earth and place in the universe, £3.15; Theme 351, The earth and place in the universe, £3.15; Theme 352, The earth and place in the universe, £3.15; Theme 353, The earth and place in the universe, £3.15; Theme 354, The earth and place in the universe, £3.15; Theme 355, The earth and place in the universe, £3.15; Theme 356, The earth and place in the universe, £3.15; Theme 357, The earth and place in the universe, £3.15; Theme 358, The earth and place in the universe, £3.15; Theme 359, The earth and place in the universe, £3.15; Theme 360, The earth and place in the universe, £3.15; Theme 361, The earth and place in the universe, £3.15; Theme 362, The earth and place in the universe, £3.15;

BOROUGH OF HARINGEY EDUCATION SERVICE

COLDFAIR J. & I. SCHOOL
Coldfair Avenue N10 1HS

DEPUTY HEAD TEACHER (Group 4)

plus £287 temporary addition

Required for April, 1978.
Applications are invited from suitably qualified and experienced teachers for the post of Deputy Head Teacher of this newly re-organised school.
London Allowance, £402 allowance.
Removal expenses—100% allowed.
Application forms (a.s.e.) may be obtained from the Chief Education Officer, Education Offices, Somerset Road, N.17, to whom the forms should be returned as soon as possible.

BOROUGH OF HARINGEY EDUCATION SERVICE

ST. PAUL'S & ALL HALLOWS (C.E.), J.M. & I. SCHOOL
PARK LANE, N.17

HEAD TEACHER GROUP 6

Required for September, 1978.
Applications are invited from suitably qualified and experienced teachers for the post of Head Teacher of this school, which is to be reorganised in September, 1978, as a J.M. & I. from separate Infant and Junior Schools. Applicants should be practising communicant members of the Church. Salary payable on Barnham Head Teacher Scale (Group 6). Forms of application from the undersigned (a.s.e.) to be returned to the Chairman of Managers, Miss D. B. Smith, C.B.E., 134 Green Dragon Lane, Whitechapel Hill, London, E8 2JN, by January 27, 1978.
London Allowance payable, £402.
Removal expenses, 100 per cent allowed.
Application forms (a.s.e.) and further details may be obtained from the Chief Education Officer, Education Offices, Somerset Road, N.17.

BOROUGH OF HARINGEY EDUCATION SERVICE

STAMFORD HILL J.M. & I. SCHOOL,
BERKLEY ROAD, N15 6HD

HEAD TEACHER GROUP 5

Required for April, 1978.
Applications are invited from suitably qualified and experienced teachers for the post of Head Teacher of this newly re-organised school. The school has been designated one of social priority and an additional allowance of £201-£278 per annum is payable.
London Allowance £402 payable.
Removal expenses—100 per cent allowed.
Application forms (a.s.e.) and further details may be obtained from the Chief Education Officer, Education Offices, Somerset Road, N.17, to whom the forms should be returned by 27th January, 1978.

County of Cleveland

PRIMARY SCHOOL
HEAD TEACHER (GROUP 7)
COULBY NEWHAM PRIMARY SCHOOL
Manor Farm Way, Coulbys Newham, Middlesbrough, Cleveland

Applications are invited from suitably qualified and experienced teachers for the above post in a large new housing area. The school when fully completed will be a 2 form-entry (580 places) primary school for children aged between 5-11, and the first 240 places in September, 1978. Subject to final approval it is also planned to add a 70-place special education unit to the school in the 1978/79 building programme which would revise the school's group to Group 8. Facilities for community use will be integrated with the first installation of the school. It is anticipated that the successful applicant will take up the post at the commencement of the Summer Term, 1978.
Financial assistance with household removal expenses is available in approved cases.
Forms of application and further details obtainable from and returnable to the County Education Officer, Education Offices, Woodlands Road, Middlesbrough, Cleveland, TS1 3BN, not later than 3rd February 1978.

ilea Headships

St Peter's RC (J.M. & I.) School,
Crescent Road, Woolwich, SE18

Applications are invited from practising Roman Catholics for this headship. Burnham Group 5. The post will become vacant on the retirement of the headteacher with effect from 1 September, 1978. The school serves a wide district including East Charlton, Woolwich and Plumstead between the River Thames and Plumstead and Woolwich Commons. It occupies good modern buildings with adequate playground. Application forms available from the Reverend Correspondent, St. Peter's Church, 103, Woolwich New Road, London SE18 8EP. Closing date for return of completed application forms 3 February.

St Mary's CE (J.M. & I.) School,
West End Lane, Kilburn, NW6

Required for September, 1978, headteacher for this Group 4 school of 204 pupils, who is an active communicant member of the Church of England. Application forms obtainable from the Correspondent to the Managers, St. Mary's School, West End Lane, which should be returned to the Parish Priest, Rev. P. D. Marsh, St. Mary's Vicarage, 50 Priory Road, West Hampstead, NW6 3RE, as soon as possible. Closing date for return of completed application forms 10 February.

HUMBERSIDE COUNTY COUNCIL EDUCATION DEPARTMENT

Required for Easter, 1978 or as soon as possible thereafter

HEADS

- for
Bridlington Moorfield Junior School
Oxford Street, Bridlington
N.O.R. 542 Age Range 7-11
- Wold Junior High School
Wold Road, Hull
N.O.R. 352 Age Range 9-13
- Guinness & Burringham C.E.
(Controlled) Primary School
Guinness, Scitcliffe
N.O.R. 154 Age Range 5-11
- Sigglesworth (Controlled)
Primary School
Sigglesworth, Hull
N.O.R. 34 Age Range 5-11
- Wroth Travis Charity (Controlled)
Primary School
Wroth, Doncaster
N.O.R. 45 Age Range 5-11
- Further particulars and application forms may be obtained from the Director of Education (H.Q. Schools), County of Humberside, North Humberside (0482) 887131, 33x1, 416) to whom completed forms should be returned not later than 30th January, 1978.

HAMPSHIRE

ALL SAINTS C.E. (AIDED) JUNIOR SCHOOL
Lewes Road, Fleet
508 on roll
Required for Autumn Term 1978 or as soon as possible.

HEAD TEACHER—GROUP 7
(Re-Advertisement)
Closing date February 10, 1978.
Details and forms of application obtainable from the Area Education Officer, Gosport, Gosport Road, Portsmouth, Hampshire (a.s.e., please).

STAMSHAW FIRST SCHOOL (5-8)
Stamshaw Road, Portsmouth PO2 8NN
Required from September, 1978.

HEAD TEACHER—GROUP 6
Closing date February 10, 1978.
S.a.s. for form and details to the Area Education Officer, 17/18 Western Parade, Portsmouth PO6 3JQ.

GOMER COUNTY JUNIOR SCHOOL
Plyford Close, Gosport
Required September 1978.

DEPUTY HEAD—GROUP 5
Closing date February 3, 1978.
Details and application form from Head (a.s.e., please).

ST. JUDE'S C.E. FIRST SCHOOL
Warren Avenue, Southampton SO1 8AH
Required for April, 1978.

DEPUTY HEAD—GROUP 4
S.a.s. to Head for details by January 27, 1978.
SPRINGHILL R.C. PRIMARY SCHOOL
Milton Road, Southampton SO1 2HW
Required for April

SECOND MASTER/MISTRESS—
GROUP 7
Applicants may be practising Roman Catholics.
S.a.s. to Rev Canon G. Dwyer, St. Edmund's Parsonage, Rotherhithe Place, Southampton, for details by January 27, 1978.

HEADSHIP

Thurrock Area—RE-ADVERTISEMENT

ABBOTTS HALL COUNTY INFANTS' SCHOOL
Abbotts Drive, Stanford-le-Hope
(Roll 235) Group 5

For this Infant's School with effect from the beginning of the Autumn Term, 1978.

Previous applicants need not re-apply as their applications will receive consideration.
Closing Date: 10th February, 1978.

Application forms and further details obtainable from the County Education Officer, P.O. Box 47, Mole Road, Chelmsford.



BOROUGH OF HARINGEY EDUCATION SERVICE

CAMPSBOURNE INFANTS' SCHOOL,
NIGHTINGALE LANE, N8 7AF

HEAD TEACHER (GROUP 4)

Required for September, 1978

Applications are invited from suitably qualified and experienced teachers for the post of Head Teacher of Campsbourne Infants' School. This vacancy is due to the retirement of the present Head Teacher. London Allowance £402 payable.
Removal expenses—100% allowed.
Application forms (a.s.e.) and further details may be obtained from the Chief Education Officer, Education Offices, Somerset Road, N.17, to whom the forms should be returned by 3rd February, 1978.

NORFOLK COUNTY COUNCIL Education Department HEADS

for Three Newly Established First Schools
MATTSHALL FIRST SCHOOL (Group 4)
MUNDLESLEY FIRST SCHOOL (Group 3)
ORMESBY FIRST SCHOOL (Group 4)

RE-ADVERTISEMENT
(previous applicants need not re-apply)

FLEGGBURGH V.C.P. SCHOOL (Group 2)

Application forms and further details can only be obtained by sending a stamped addressed envelope to the County Education Officer, County Hall, Marling Lane, Norwich, NR1 2DL.
Closing date for applications: 7th February.
Removal expenses payable in accordance with the Authority's scheme.

COUNTY OF SOUTH GLAMORGAN

HEAD TEACHER GROUP IV

ST MONICA'S CHURCH IN WALES
PRIMARY SCHOOL, CARDIFF

The Managers invite applications from qualified and experienced teachers, who are practising members of the Anglican Communion, for the post of HEAD TEACHER of this Group IV Infant and Junior School. The Managers are anxious to appoint a progressive and energetic Head Teacher sympathetic to the religious ideas of the School, to take up duties at the beginning of the summer term or as soon as possible afterwards.

Application forms may be obtained on receipt of a stamped addressed envelope from the undersigned, to whom completed forms should be returned within 10 days of the appearance of this advertisement.
F. J. Adams, Director of Education, Education Offices, Kingsway, Cardiff

WARWICKSHIRE APPOINTMENT IN HEAD

ST. MATTHEW'S R.C. JUNIOR SCHOOL
(CONTINUED) 1978
Pleasance Road, Warwick, CV3 5JF

Applications are invited from suitably qualified and experienced teachers for the post of Head of this Group 4 Junior School. The school is situated in a pleasant residential area and has a roll of 120 pupils. Further details and application forms may be obtained from the County Education Officer, Warwick, CV3 5JF, or from the Head Teacher, Mr. J. H. Jones, St. Matthew's R.C. Junior School, Pleasance Road, Warwick, CV3 5JF.

WILTSHIRE
HOLTS CONTROLLED SCHOOL
Number on roll: 125

HEAD TEACHER required for this Group 4 Junior School. Further details and application forms may be obtained from the County Education Officer, Wiltshire, or from the Head Teacher, Mr. J. H. Jones, St. Matthew's R.C. Junior School, Pleasance Road, Warwick, CV3 5JF.

NORTHUMBRIA
COUNTY COUNCIL
CHAMBERLAIN NO. 2
COUNTY JUNIOR SCHOOL
HEAD TEACHER (Group 4)

Required for this new 1st Form school, to be opened in September, 1978. The school will have a roll of 120 pupils. Further details and application forms may be obtained from the County Education Officer, Northumbria, or from the Head Teacher, Mr. J. H. Jones, St. Matthew's R.C. Junior School, Pleasance Road, Warwick, CV3 5JF.

WILTSHIRE
HOLTS CONTROLLED SCHOOL
Number on roll: 125

HEAD TEACHER required for this Group 4 Junior School. Further details and application forms may be obtained from the County Education Officer, Wiltshire, or from the Head Teacher, Mr. J. H. Jones, St. Matthew's R.C. Junior School, Pleasance Road, Warwick, CV3 5JF.

WILTSHIRE
HOLTS CONTROLLED SCHOOL
Number on roll: 125

HEAD TEACHER required for this Group 4 Junior School. Further details and application forms may be obtained from the County Education Officer, Wiltshire, or from the Head Teacher, Mr. J. H. Jones, St. Matthew's R.C. Junior School, Pleasance Road, Warwick, CV3 5JF.

WILTSHIRE
HOLTS CONTROLLED SCHOOL
Number on roll: 125

HEAD TEACHER required for this Group 4 Junior School. Further details and application forms may be obtained from the County Education Officer, Wiltshire, or from the Head Teacher, Mr. J. H. Jones, St. Matthew's R.C. Junior School, Pleasance Road, Warwick, CV3 5JF.

WILTSHIRE
HOLTS CONTROLLED SCHOOL
Number on roll: 125

HEAD TEACHER required for this Group 4 Junior School. Further details and application forms may be obtained from the County Education Officer, Wiltshire, or from the Head Teacher, Mr. J. H. Jones, St. Matthew's R.C. Junior School, Pleasance Road, Warwick, CV3 5JF.

WILTSHIRE
HOLTS CONTROLLED SCHOOL
Number on roll: 125

HEAD TEACHER required for this Group 4 Junior School. Further details and application forms may be obtained from the County Education Officer, Wiltshire, or from the Head Teacher, Mr. J. H. Jones, St. Matthew's R.C. Junior School, Pleasance Road, Warwick, CV3 5JF.

WILTSHIRE
HOLTS CONTROLLED SCHOOL
Number on roll: 125

HEAD TEACHER required for this Group 4 Junior School. Further details and application forms may be obtained from the County Education Officer, Wiltshire, or from the Head Teacher, Mr. J. H. Jones, St. Matthew's R.C. Junior School, Pleasance Road, Warwick, CV3 5JF.

WILTSHIRE
HOLTS CONTROLLED SCHOOL
Number on roll: 125

HEAD TEACHER required for this Group 4 Junior School. Further details and application forms may be obtained from the County Education Officer, Wiltshire, or from the Head Teacher, Mr. J. H. Jones, St. Matthew's R.C. Junior School, Pleasance Road, Warwick, CV3 5JF.

WILTSHIRE
HOLTS CONTROLLED SCHOOL
Number on roll: 125

HEAD TEACHER required for this Group 4 Junior School. Further details and application forms may be obtained from the County Education Officer, Wiltshire, or from the Head Teacher, Mr. J. H. Jones, St. Matthew's R.C. Junior School, Pleasance Road, Warwick, CV3 5JF.

WILTSHIRE
HOLTS CONTROLLED SCHOOL
Number on roll: 125

HEAD TEACHER required for this Group 4 Junior School. Further details and application forms may be obtained from the County Education Officer, Wiltshire, or from the Head Teacher, Mr. J. H. Jones, St. Matthew's R.C. Junior School, Pleasance Road, Warwick, CV3 5JF.

WILTSHIRE
HOLTS CONTROLLED SCHOOL
Number on roll: 125

HEAD TEACHER required for this Group 4 Junior School. Further details and application forms may be obtained from the County Education Officer, Wiltshire, or from the Head Teacher, Mr. J. H. Jones, St. Matthew's R.C. Junior School, Pleasance Road, Warwick, CV3 5JF.

WILTSHIRE
HOLTS CONTROLLED SCHOOL
Number on roll: 125

HEAD TEACHER required for this Group 4 Junior School. Further details and application forms may be obtained from the County Education Officer, Wiltshire, or from the Head Teacher, Mr. J. H. Jones, St. Matthew's R.C. Junior School, Pleasance Road, Warwick, CV3 5JF.

WILTSHIRE
HOLTS CONTROLLED SCHOOL
Number on roll: 125

HEAD TEACHER required for this Group 4 Junior School. Further details and application forms may be obtained from the County Education Officer, Wiltshire, or from the Head Teacher, Mr. J. H. Jones, St. Matthew's R.C. Junior School, Pleasance Road, Warwick, CV3 5JF.

WILTSHIRE
HOLTS CONTROLLED SCHOOL
Number on roll: 125

HEAD TEACHER required for this Group 4 Junior School. Further details and application forms may be obtained from the County Education Officer, Wiltshire, or from the Head Teacher, Mr. J. H. Jones, St. Matthew's R.C. Junior School, Pleasance Road, Warwick, CV3 5JF.

WILTSHIRE
HOLTS CONTROLLED SCHOOL
Number on roll: 125

HEAD TEACHER required for this Group 4 Junior School. Further details and application forms may be obtained from the County Education Officer, Wiltshire, or from the Head Teacher, Mr. J. H. Jones, St. Matthew's R.C. Junior School, Pleasance Road, Warwick, CV3 5JF.

WILTSHIRE
HOLTS CONTROLLED SCHOOL
Number on roll: 125

HEAD TEACHER required for this Group 4 Junior School. Further details and application forms may be obtained from the County Education Officer, Wiltshire, or from the Head Teacher, Mr. J. H. Jones, St. Matthew's R.C. Junior School, Pleasance Road, Warwick, CV3 5JF.

WILTSHIRE
HOLTS CONTROLLED SCHOOL
Number on roll: 125

HEAD TEACHER required for this Group 4 Junior School. Further details and application forms may be obtained from the County Education Officer, Wiltshire, or from the Head Teacher, Mr. J. H. Jones, St. Matthew's R.C. Junior School, Pleasance Road, Warwick, CV3 5JF.

CLYDE COUNTY COUNCIL EDUCATION SERVICE

DEPUTY HEAD
HILLTOP JUNIOR SCHOOL
1255 Hilltop Road, Glasgow, G12 8JF

Applications are invited from suitably qualified and experienced teachers for the post of Deputy Head Teacher of this Group 4 Junior School. The school is situated in a pleasant residential area and has a roll of 120 pupils. Further details and application forms may be obtained from the County Education Officer, Clyde, or from the Head Teacher, Mr. J. H. Jones, St. Matthew's R.C. Junior School, Pleasance Road, Warwick, CV3 5JF.

CLYDE
COUNTY COUNCIL
EDUCATION SERVICE

DEPUTY HEAD
HILLTOP JUNIOR SCHOOL
1255 Hilltop Road, Glasgow, G12 8JF

Applications are invited from suitably qualified and experienced teachers for the post of Deputy Head Teacher of this Group 4 Junior School. The school is situated in a pleasant residential area and has a roll of 120 pupils. Further details and application forms may be obtained from the County Education Officer, Clyde, or from the Head Teacher, Mr. J. H. Jones, St. Matthew's R.C. Junior School, Pleasance Road, Warwick, CV3 5JF.

CLYDE
COUNTY COUNCIL
EDUCATION SERVICE

DEPUTY HEAD
HILLTOP JUNIOR SCHOOL
1255 Hilltop Road, Glasgow, G12 8JF

Applications are invited from suitably qualified and experienced teachers for the post of Deputy Head Teacher of this Group 4 Junior School. The school is situated in a pleasant residential area and has a roll of 120 pupils. Further details and application forms may be obtained from the County Education Officer, Clyde, or from the Head Teacher, Mr. J. H. Jones, St. Matthew's R.C. Junior School, Pleasance Road, Warwick, CV3 5JF.

CLYDE
COUNTY COUNCIL
EDUCATION SERVICE

DEPUTY HEAD
HILLTOP JUNIOR SCHOOL
1255 Hilltop Road, Glasgow, G12 8JF

Applications are invited from suitably qualified and experienced teachers for the post of Deputy Head Teacher of this Group 4 Junior School. The school is situated in a pleasant residential area and has a roll of 120 pupils. Further details and application forms may be obtained from the County Education Officer, Clyde, or from the Head Teacher, Mr. J. H. Jones, St. Matthew's R.C. Junior School, Pleasance Road, Warwick, CV3 5JF.

CLYDE
COUNTY COUNCIL
EDUCATION SERVICE

DEPUTY HEAD
HILLTOP JUNIOR SCHOOL
1255 Hilltop Road, Glasgow, G12 8JF

Applications are invited from suitably qualified and experienced teachers for the post of Deputy Head Teacher of this Group 4 Junior School. The school is situated in a pleasant residential area and has a roll of 120 pupils. Further details and application forms may be obtained from the County Education Officer, Clyde, or from the Head Teacher, Mr. J. H. Jones, St. Matthew's R.C. Junior School, Pleasance Road, Warwick, CV3 5JF.

CLYDE
COUNTY COUNCIL
EDUCATION SERVICE

DEPUTY HEAD
HILLTOP JUNIOR SCHOOL
1255 Hilltop Road, Glasgow, G12 8JF

Applications are invited from suitably qualified and experienced teachers for the post of Deputy Head Teacher of this Group 4 Junior School. The school is situated in a pleasant residential area and has a roll of 120 pupils. Further details and application forms may be obtained from the County Education Officer, Clyde, or from the Head Teacher, Mr. J. H. Jones, St. Matthew's R.C. Junior School, Pleasance Road, Warwick, CV3 5JF.

CLYDE
COUNTY COUNCIL
EDUCATION SERVICE

DEPUTY HEAD
HILLTOP JUNIOR SCHOOL
1255 Hilltop Road, Glasgow, G12 8JF

Applications are invited from suitably qualified and experienced teachers for the post of Deputy Head Teacher of this Group 4 Junior School. The school is situated in a pleasant residential area and has a roll of 120 pupils. Further details and application forms may be obtained from the County Education Officer, Clyde, or from the Head Teacher, Mr. J. H. Jones, St. Matthew's R.C. Junior School, Pleasance Road, Warwick, CV3 5JF.

CLYDE
COUNTY COUNCIL
EDUCATION SERVICE

DEPUTY HEAD
HILLTOP JUNIOR SCHOOL
1255 Hilltop Road, Glasgow, G12 8JF

Applications are invited from suitably qualified and experienced teachers for the post of Deputy Head Teacher of this Group 4 Junior School. The school is situated in a pleasant residential area and has a roll of 120 pupils. Further details and application forms may be obtained from the County Education Officer, Clyde, or from the Head Teacher, Mr. J. H. Jones, St. Matthew's R.C. Junior School, Pleasance Road, Warwick, CV3 5JF.

CLYDE
COUNTY COUNCIL
EDUCATION SERVICE

DEPUTY HEAD
HILLTOP JUNIOR SCHOOL
1255 Hilltop Road, Glasgow, G12 8JF

Applications are invited from suitably qualified and experienced teachers for the post of Deputy Head Teacher of this Group 4 Junior School. The school is situated in a pleasant residential area and has a roll of 120 pupils. Further details and application forms may be obtained from the County Education Officer, Clyde, or from the Head Teacher, Mr. J. H. Jones, St. Matthew's R.C. Junior School, Pleasance Road, Warwick, CV3 5JF.

CLYDE
COUNTY COUNCIL
EDUCATION SERVICE

DEPUTY HEAD
HILLTOP JUNIOR SCHOOL
1255 Hilltop Road, Glasgow, G12 8JF

Applications are invited from suitably qualified and experienced teachers for the post of Deputy Head Teacher of this Group 4 Junior School. The school is situated in a pleasant residential area and has a roll of 120 pupils. Further details and application forms may be obtained from the County Education Officer, Clyde, or from the Head Teacher, Mr. J. H. Jones, St. Matthew's R.C. Junior School, Pleasance Road, Warwick, CV3 5JF.

CLYDE
COUNTY COUNCIL
EDUCATION SERVICE

DEPUTY HEAD
HILLTOP JUNIOR SCHOOL
1255 Hilltop Road, Glasgow, G12 8JF

Applications are invited from suitably qualified and experienced teachers for the post of Deputy Head Teacher of this Group 4 Junior School. The school is situated in a pleasant residential area and has a roll of 120 pupils. Further details and application forms may be obtained from the County Education Officer, Clyde, or from the Head Teacher, Mr. J. H. Jones, St. Matthew's R.C. Junior School, Pleasance Road, Warwick, CV3 5JF.

CLYDE
COUNTY COUNCIL
EDUCATION SERVICE

DEPUTY HEAD
HILLTOP JUNIOR SCHOOL
1255 Hilltop Road, Glasgow, G12 8JF

Applications are invited from suitably qualified and experienced teachers for the post of Deputy Head Teacher of this Group 4 Junior School. The school is situated in a pleasant residential area and has a roll of 120 pupils. Further details and application forms may be obtained from the County Education Officer, Clyde, or from the Head Teacher, Mr. J. H. Jones, St. Matthew's R.C. Junior School, Pleasance Road, Warwick, CV3 5JF.

CLYDE
COUNTY COUNCIL
EDUCATION SERVICE

DEPUTY HEAD
HILLTOP JUNIOR SCHOOL
1255 Hilltop Road, Glasgow, G12 8JF

Applications are invited from suitably qualified and experienced teachers for the post of Deputy Head Teacher of this Group 4 Junior School. The school is situated in a pleasant residential area and has a roll of 120 pupils. Further details and application forms may be obtained from the County Education Officer, Clyde, or from the Head Teacher, Mr. J. H. Jones, St. Matthew's R.C. Junior School, Pleasance Road, Warwick, CV3 5JF.

The London Borough of Redbridge is a pleasant residential area in North-East London with easy access to the West End and the Essex countryside. Help will be given in finding accommodation with local facilities for house purchase, removal and resettlement expenses where appropriate. Outer London Allowance payable.
Applications are invited from suitably qualified and experienced teachers for the post of:

Headteacher

of CHRISTCHURCH INFANTS' SCHOOL
Wellesley Road, Ilford
Group 5 No. on roll—220.

This post will become vacant from September, 1978. Application forms and further particulars are available from and returnable to: Mr. J. E. Fordham, B.A., Chief Education Officer, 255/259 High Road, Ilford, Essex, IG1 1NN.
Closing date: 14th February, 1978.

Redbridge London Borough

BOROUGH OF HARINGEY EDUCATION SERVICE

STAMFORD HILL J.M. & I. SCHOOL
BERKLEY ROAD, N.15 6HD

DEPUTY HEAD TEACHER (GROUP 5)

Required for April, 1978.
Applications are invited from suitably qualified and experienced teachers for the post of Deputy Head Teacher of this newly re-organised school. The school has been designated one of social priority and an additional allowance of £201-£278 per annum is payable.
London Allowance £402 payable.
Removal expenses—100% allowed.
Application forms (a.s.e.) and further details may be obtained from the Chief Education Officer, Education Offices, Somerset Road, N.17, to whom the forms should be returned by 3rd February, 1978.

Education Committee
The Borough is within easy access of Central London and is bordered by Epping Forest.
Required for Easter, 1978.

Deputy Head Teacher

for Beaumont Primary School, Burrell Road, Leyton E10.
This is a Group 8 purpose-built open-plan school which opened in 1974. Salary £4,245-£5,334 including supplements plus £297 London Allowance.
Application forms and further details (enclose S.A.E.) obtainable from and returnable to the Chief Education Officer, Municipal Offices, High Road, Leyton E10 5DJ.
Closing date: 7th February, 1

Scale 1 Posts

DUDLEY
METROPOLITAN BOY
LITTLE LEAGUE: AG
Brookline, Mass., High
West. Middle, 1962.
110-13, 666 am ro
Resired as anon of
TRANSFER for BUYN'
CAL. EDUCATION and
MATHEMATICS, (11-20
1961.)
Further particulars
action form from the

Religious Education

Other Posts on
Scale 2 and abo

MERTON
(London Borough of)

Application forms available, receipt of a stamped address

Science

**Other Posts on
Scale 2 and above**

NORTHUMBRIA

Application may be made by letter or on application forms obtainable from the Head Teachers at the addresses shown above. Applications by letter should include detailed information regarding education, training, qualifications and experience, together with the names and addresses of three referees. Letters of application and completed application forms should be sent to the following:

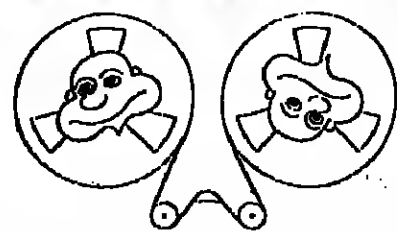
on Scale 3 have already b

ow invited from teachers
nalhemeloe and with rate
to 13 age range for
lar's post.
following the previous
considered and need no

J. S. WILKIE, M.A., F.R.S.E.

LONDON
BOROUGH OF
NEWHAM

FRED learns ABOUT COMPUTERS



In common with the other titles in this successful series this Fredbook conveys to the reader the key features and ground-rules of the subject, simply and painlessly. This is achieved through the use of a clear conversational style and a page-by-page use of pictorial explanations. The essentials of the subject are examined in some detail, giving a general but comprehensive account. Although the style throughout the text is deliberately kept simple, this simplification should lead to a deeper, rather than a shallower, understanding.

Available Spring 1978

£1.50

Also available

Basic Computer Science J.K. ATKIN £1.50
Business Systems R.G. ANDERSON £1.25
Data Processing and Management Information Systems R.G. ANDERSON £2.00

Teachers and lecturers may send for
inspection copies of any of the above titles.

NAME _____
SCHOOL/COLLEGE _____
ADDRESS _____
TITLES REQUIRED _____

Please tick here () if you would like a FREE Business Studies
catalogue.
Send this completed coupon to Macdonald & Evans Ltd.,
FREEPOST, Plymouth PL6 2BR (No postage stamp necessary
if posted in the U.K.)

Smaller and smaller...

A. K. HENNESSY reports on the potential of minicomputers

Recent developments in computer technology are beginning to revolutionize the provision of computing facilities for universities, polytechnics, and colleges of technology, further and higher education.

Until a few years ago, any educational institution that wanted to provide a computer would have had to run it on a mainframe computer. Such a machine would cost from £250,000 to £1m by the time it had been installed; it would also cost from £50,000-£500,000 a year to run a service based on the machine.

Enhancements to bring the existing machine up to date in terms of capacity and capability could cost up to £50,000 or £300,000 more. With such large costs, it was necessary to ensure careful management of the institution's single computer. This, of course, meant a centralized computing service which attempted to provide service throughout the institution. It also meant Government control and interference for obsolescent ICL systems.

One of the main difficulties in having a centralized computer service is that it quickly moves away from its original purpose: provision for academic requirements.

The main comes when administrative requirements, especially for processing of data, are put before the needs of students. For dyslexic students in the polytechnics and colleges, a delay in processing of just a few hours can make the difference of a week to getting their programs back.

For the academic staff, this is an unacceptable slow service. For the head of the centralized service, the problem is one of scheduling work to keep the minimum number of people reasonably happy; he has to juggle priorities.

Another problem with centralized computer services is that they tend to be too complex for academic staff to use. Unless an expensive user service is provided, staff who want to use the computer, say, for survey analysis, are obliged to the general direction of manufacturers' manuals and left to struggle with technical jargon, highly specialized techniques and totally incomprehensible instructions.

Centralized computer services, because of their high costs, have to be operated by specialist technical staff. This means that students are unable to get their hands on the machines, to get the "feel" of how they work. In most institutions, computing students are not allowed past the doors of the computer room except on escorted tours of less than one hour.

During the past few years, a number of specialist computer bureaux have been established to deal with specific computing needs, such as insurance, computer-aided design, information retrieval, and engineering calculations.

Authorization for funds to use these computer bureaux is often denied academic departments on the ground that the central computer service could provide such a service. The fact that development of some specialist service would be prohibitively expensive is often

ignored, and the promised services never let, in fact, materialize. Many academic departments gain access to the bureau by "back-door" methods: by research grants, by getting help from industry, and by arranging "demonstrations". None of these are satisfactory in that they take a lot of academic staff time and do not give students the needed access.

Managers of central computer services tend to focus on the proliferation of terminals in the academic departments; they prefer a central room in which many terminals are installed because they can then be used by staff and students from all departments. The fact that a central terminal is too far away from the academic department for the academic staff and their students to be of much use in the teaching situation is often ignored.

But now, a new series of developments in computer technology is about to revolutionize the situation. The cost of computer power has dropped remarkably in the past three years. For example, an NCR 8250 costing less than £30,000 can provide on-line editing facilities for up to eight students at a time and can compile and run a student COBOL programme in about five minutes.

Phillips, Hewlett-Packard, Honeywell, Burroughs and many other manufacturers offer similar facilities. This means that, in an hour-long programming practical session, 12 students can edit and run their programmes. Because 12 students are about all one tutor can cope with in a one-hour practical, these small machines seem ideal for a departmental "computing laboratory".

The advantages of these machines are numerous: they do not need special flooring and ventilation, they can be run by the academic staff, technicians and students, and priority for their use is brought back under the control of academic staff. Keylogging of longer runs can be done by typists, because the problems of dealing with punched cards no longer arises; the programmes are entered directly on to magnetic tape or disk.

Compared with the 24-hour-plus wait around the time it takes a computer tape to be loaded by the system from the point at which the user plays in the work to the service until it is returned to him, the "mini" system is much simpler for staff and students.

Another technological development is the tendency for the manufacturers of the "minis" to provide a comprehensive library of easy-to-use reliable programs. This means that academic staff do not have to negotiate unhelpful "beginners" in the central service for programming assistance in the development of demonstration packages.

In many cases, especially for commercial work, the programs are simply on call. Sometimes they are "hard-wired", that is, they have been converted into micro-circuitry and the appropriate circuit board need only be plugged in. The usual problems of unstable, difficult-to-use programs with long development times are largely avoided.

When things do go wrong, programs, the user is directly responsible for the error. With central services there is usually a lot of such work and many delays.

The new "mini" units, another advantage, they can be connected to external computers via the telephone. This means the academic can easily switch the mind from a small "local" program to contact with specialist services. They can also be held in a room that is closed during the day for transmission, evening when telephone lines disappear.

There is also a new type of special-purpose "mini" which is able to perform only a few tasks, such as compiling, processing control, charging and analysis. In practice and technical courses, these tend to be industry-specific "minis" provide all the facilities an academic department requires. Some of them are as little as £2,000 and go to run.

The purchase of all the equipment is supported through a central Department of Education and Science and the cost is met by the local authority. The local authority is delegated to decide on the facilities. Most of these also have responsibility for the purchase and maintenance of the machines and statistics, and industrially based subjects.

Because it is much easier to deal with a central computer service, they tend to allocate funds through the local authority instead of to the academic departments. Because of some of the "mini" units, it is not through the local authority that funds are allocated. A "mini" unit would have thought for a departmental "computing laboratory".

Control over terminal allocation for who would be able to use a "mini" unit is a "mini" with a number of academic programmes and in the computer and run COBOL programmes.

The new low cost and easy to use "minis" mean that the local authority can now afford to provide a "mini" unit for each department. This means that the local authority can now afford to provide a "mini" unit for each department.

The new low cost and easy to use "minis" mean that the local authority can now afford to provide a "mini" unit for each department. This means that the local authority can now afford to provide a "mini" unit for each department.

The new low cost and easy to use "minis" mean that the local authority can now afford to provide a "mini" unit for each department. This means that the local authority can now afford to provide a "mini" unit for each department.

...and yet smaller

A. K. HENNESSY reports on the potential of minicomputers

There are three general ways of using a computer. Two of them do not depend on the physical presence of the computer—you communicate either directly over telephone lines or indirectly via prepared information such as punched paper tape or pencil marked cards. The third method is to situate the computer where it is going to be used.

Berkshire pioneered the use of in-school computers when in 1971 they purchased two mini-computers. Since then, the use of mini-computers in schools has moved from time to time to the second wave to develop teacher training courses in Berkshire College of Education.

At current prices, the shared computer represented more than £3,000 a school while only being usable for a quarter of the time. To even these educationalists who accept the case for computer education in schools, this represents the argument against providing computer resources.

Fortunately, technology has supplied an answer. I wonder how many readers have heard of an electronic device called a microprocessor? It is a tiny chip, only a few millimetres long, which contains the equivalent of a computer system at a similarly low cost.

For 18 months I demonstrated and used in the classroom such a microprocessor based system in various stages of development. My last major demonstration was in a conference held in an attempt to establish some national common ground on the subject of the essential or desirable characteristics of an in-school computer.

A working party to investigate the use of microprocessor based computers (microcomputers) in schools and colleges was set up in Berkshire. Although at first unofficial, it is now an agency of the Berkshire County Council working party on computer education and of the school of In-service Education and Research at Halmers College.

It became clear that any approach, essentially the building of a computer approach, was potentially a general recommendation. Its attraction is, of course, the low cost. However, as in the case of a French teacher building a language laboratory or a physics teacher building a set of laboratory oscilloscopes, even if time is available, the need to provide continuity of maintenance is an insuperable problem.

A first step, therefore, was to involve a manufacturer in our discussions. The result of this liaison was the Research Machines 3802 microcomputer. Although the machine is not solely aimed at the educational market, it is comforting that a commercial manufacturer has paid close attention to the views of a group of teachers and has produced a machine that the working party now recommends as suitable.

One impressive feature is that, despite the growth in demand since 1970, the minimum system occupies less than a quarter of the box. This not only leaves room for expansion, but provides an easily portable system. It is a resource that can be used 52 weeks of the year, providing out only education in the classroom for pupils but also at home for the teacher, very necessary in such a poorly supported new subject.

The actual computer system, however, is only part of the total support necessary to make effective use of such a tool. Just as a university graduate is ill-equipped to teach in a school without the support of a curriculum and courses, the computer cannot be used as an educational tool until it has been correctly programmed.

It is, however, a flexible instrument, but developing ways of using the computer is a time-consuming as developing a complete course of studies in any subject. Some work has already been done in Berkshire along these lines, and it is interesting that the use of the computer has offered an alternative to the general philosophy of a student making mistakes and having them corrected at a later stage. Mistakes are corrected as soon as they are made.

Such an approach has led to the breaking down of the traditional man-machine barrier, the machine truly aiding learning without placing severe constraints on communication. An example of this is a spelling "game" which has been devised where the names of pictures and objects on numbered cards are typed into the computer by a pupil. The pupil will never see an incorrectly spelt word on the computer screen, as incorrect letters are ignored, although a running total of incorrect letters is made for an end of game "score". The applications of such a game come from the initial learning of spelling to remedial teaching, not only in English but also foreign languages.

Initial testing seems to suggest that children as young as six find such games enjoyable. The effectiveness of the system is illustrated by the case of a nine-year-old who had for years mispronounced and mispelt abundance as "abundance". It took only a few minutes to put this right with the computer game.

Chris Robinson, formerly head of computing at Gorth Hill School, Bracknell, is now a consultant with Leasco Software Ltd.

Research Machines 3802 microcomputer.

Continued from previous page

much reduced and individual guidance enhanced.

As always the success of the method depends on the amount of preparation done by the teacher. The style of teaching is entirely different from traditional chalk and talk. Teachers now to the game can easily find themselves in a void with the whole class revolving around them, apparently without needing my help. It is said to take at least a week to become accustomed to this, and another three before full confidence is restored.

There are new techniques to be mastered such as the use of flow charts for lesson planning and a method of rationalized subjective assessment that is beyond the computer. Face-to-face teaching, where it occurs, is of a different order, a response to cries for help or brief tutorials on aspects of a subject as requested by the computer programme.

Biology subjects are taught in five-week courses designed by William Broderick and Keith Lovatt, who run the Haverling computer service.

Mr Lovatt told me he expected pupils using the computer learning tasks to show a net learning gain of 20 per cent. "In normal teaching the gain is much less. Teachers can count themselves lucky if it is as high as 10 per cent."

Teachers are naturally sceptical about this, but Mr Lovatt claims measurable results. "Pupils are tested before and after a normal lesson, and teachers are amazed at how little the pupils have learnt."

He chose to give the computer course with biology simply because that is his own subject. At present these start from the third year, but he hopes eventually to develop programmes going back to the first year, although most schools in the borough now integrate the science subjects in the lower school.

Programmed courses are reserved for the more difficult concepts and Mr Lovatt expects genetics to be among those he will have to tackle soon. There is one much more pressing need, however, the reading of scales. "It applies to any graduated form of measurement—clocks,

rulers, scales—and particularly to the lower school." He estimates that some 40 per cent of lower school pupils are unable to measure accurately by millimetres. "Probably a third cannot read scales of any kind, and that is a conservative figure because it doesn't allow for copying."

To run computer assisted courses costs 19p a pupil, which Mr Lovatt considers "pretty high". The total cost of the service is £15,000 a year. This is partly offset by the interest of other local authorities, notably the Scottish. Some of those are buying Haverling courses and operating them under licence. Capital cost of the equipment, including the Hewlett-Packard computer 2116, was around £30,000.

Teachers' reactions to the innovation vary. The young tend to be the most conservative; those in their 40s the most open to new ideas, probably because they have the confidence of experience. A survey revealed that roughly two thirds of pupils prefer learning in a computer-aided system, and disapproved was stronger among boys than girls.

Continued on next page

Computers in the Curriculum

Schools Council Project 1973-1977

Project Director R. Lewis, Reader in Computer Assisted Learning, Centre for Science Education, Chelsea College, London

The materials of this project—

● relate to five curricular areas—Biology, Physics, Chemistry, Economics and Geography, and whilst designed for use with fourth, fifth and sixth forms, will be useful for tertiary level students.

● are devised to introduce into the classroom an additional teaching resource at points in the study of a topic where the computer can offer facilities not otherwise available. The primary aim of the material is to use the computer to broaden opportunities for learning and to help develop skills related to the physical and social environment.

● have been developed by practising teachers and have been thoroughly tested in the classroom over a three year period. Guided by the teacher, and led by questions in the students' material, pupils can use their knowledge of a topic to plan, for example, simulated experiments via a computer terminal linking this where possible with observations of the real world leading to classroom discussion. Previous familiarity with computers is not assumed and the project does not seek to replace existing teaching methods.

The computer programs used do not produce pre-determined results. They call for an active response on the part of pupils and encourage them to make a critical analysis by drawing conclusions from the output.

These materials, therefore, provide an experience of experimental work that would otherwise be impossible. For instance, where tedious or complex computations mean that an investigation cannot be taken beyond a fairly simple stage, or where an experiment would be too expensive, dangerous or lengthy to set up in the school laboratory, or too time consuming as often found in the study of genetics or population growth.

Each subject pack is a polythene envelope containing approximately 200 loose-leafed, pre-punched A4 pages, organised into teacher's notes and related pupil leaflets or notes. Each pack covers from seven to nine topics and permission to duplicate sets of pupil sheets has been given. The longer pupil notes are also available in sets for an extra charge and a voucher is enclosed for this purpose. The supporting computer programs and documentation are available at no extra charge and a leaflet explaining how these can be obtained is included. The computer programs are in BASIC and are designed to run on most computer systems.

Price per pack £10-12 approx

The topics covered in each subject area will be:

[] Physics
Capacitor discharge; Photoelectric effect; Gaseous diffusion; Mass spectrometer; Radioactive decay; Planetary motion; Gravitational fields; Home-heating (Gazex X) (especially suitable for the younger age-range and available separately).
January 1978

[] Chemistry
Chemical equilibrium; Rates of reaction; Gas chromatography; Electrochemical cells; Lattice energy; Contact process; Element Game.
July 1978

[] Biology
Human energy and requirements; Transpiration; Heredity; Statistics for biologists; Pond ecology; Predator-prey relationships; Counter-current systems.
January 1978

[] Geography
Drainage basin morphometry; Industrial location; Farm management statistics for geographers; Human population growth; S. R. Railway Game; Joint-stock Trading Game.
July 1978

[] Economics
Theory of the firm; Price stabilisation; Price fluctuation; Elasticity of demand; International trade; Multiplier; Monetary policy; Banking; Fiscal policy.
March 1978

Please send me the sample packs I have ticked in my inspection

Please place my name on your mailing list to receive further information on the Schools Council Computers in the Curriculum Project []

Name _____
School _____
School Address _____



Edward Arnold
25-26 Bedford Street, London WC1X 8LJ

SMP COMPACK

COMPACK is a course designed to help schools wanting to exploit the use of computers, and such computing aids as programmable calculators, showing how they can be used to improve the learning of mathematics. The course consists of three packs of work cards, enabling pupils to write and run programs, each of which are cross-referenced to the relevant SMP Secondary School books and cards.

Preliminary Pack £4.50
Main Pack £10.00
Extension Pack £10.00

Inspection material for teachers from
CAMBRIDGE UNIVERSITY PRESS
P.O. Box 92, London NW1 2DB

COMPUTING AT KINGSTON

Degrees of BSc and BSc with Honours in COMPUTER SCIENCE (CNA)

These courses are of four years' duration and include two periods of industrial training. Final year option subjects are Information Processing, Systems Programming, Simulation and Optimisation, Statistics, Numerical Analysis, Computer Systems, Hardware, Data Processing Management.

MASTERS DEGREE IN COMPUTER-AIDED DESIGN

Two-year block release course for the MSc degree in The Computer-Aided Design of Engineering Systems (CNAS). The course provides an opportunity for engineers working in industry to acquire knowledge and skills which will enable them to use computers effectively as an aid to design, control and production.

Details of these courses can be obtained by writing to the Registrar, KINGSTON POLYTECHNIC, PENNYN ROAD, KINGSTON UPON THAMES KT1 2EE 01-549 1366

Computerization on a human scale

Owen Surridge on Haverling's biology project

The chores of marking and blackboard writing have been greatly reduced for many biology teachers in the London Borough of Haverling, where a computer service has taken over much of the testing. It also provides a programmed learning system for particular subjects.

The system emerged from the experimental stage only a year ago, but already some 75 per cent of the borough's biology teachers are making regular use of the testing service. About 50 per cent have used the computer-assisted learning system to teach respiration and photosynthesis, so far the only biology topics available. There are no expensive computer terminals in the classrooms and pupils do not have themselves "locked in" to the computer, as is the case with teaching machines.

Simplicity and flexibility are the chief characteristics of the method,

which is individual both in assessment and in the pace of learning. Preliminary testing assesses each pupil before learning begins, revealing the extent of knowledge, aptitudes, and preferred style of working.

Computer-assisted learning tasks, referred to as ALTS, are allocated accordingly. These reach the pupils in the form of simplified text books, which convey information in short illustrated stages. Each stage contains a searching question which pupils answer on paper.

Allocated task time varies from 20 minutes to 60. Pupils make a note of the time taken in complete each. Those completing before the allotted span can enrich their learning with 10-minute learning modules on related matters. Slower learners are given remedial work. Answer sheets are passed to the computer service for coding; on

punched paper tape and then into the computer for analysis. Results are in the teacher's hand in good time for the next lesson. The turn-around can be as quick as 48 hours.

The computer-managed system shows precisely how much fresh knowledge has been gained by individuals, which personal files are automatically updated, and an analysis of class performance shows where general reinforcement is necessary. Such a system could eventually eliminate the necessity for formal examinations.

The aim of the computer service is to free the teacher from the routine chores of marking, giving, such as marking, marking, marking, and marking, and to enable him to concentrate on the more important aspects of his subject.

Continued on next page

COMPUTER BOOKS FROM PITMAN

ELEMENTS OF COMPUTER SCIENCE

GLYNEMERY

Empirical mathematical concepts, illustrating the use of computers in the study of mathematics, science, and engineering. Includes a chapter on the use of computers in the study of the human mind.

ELECTRONIC DATA PROCESSING

(2nd Edition 1975) GLYNEMERY

Covers basic programming techniques, data handling, data storage, and data communication. Includes a chapter on the use of computers in the study of the human mind.

BASIC TRAINING IN SYSTEMS ANALYSIS

(2nd Edition 1972) Edited by ALAN DANIELS and DONALD YEATES

A comprehensive manual based on the work of the National Computing Centre. It is now being used by many colleges of further education as a textbook for the study of systems analysis.

INTRODUCTION TO MICROPROCESSORS

Edited by D ASPINALL and E L DAGLESS

Describes the microprocessor as a computer and its use in a wide range of applications. The contributors include both engineers and programmers.

Inspection copies for teachers and librarians available from Pitman Publishing Ltd, 30 Parker Street, London WC2B 5PB. When applying state in which you wish to receive.

Powerful drawings

G. K. Clutterbuck on computers and art

With applications of computer principles being found in more and more disciplines, it follows that computer studies in schools should be introduced in as many subject areas as possible. This implies a real challenge to school staff, but it is one that should broaden the teaching possibilities, by providing more "reasons why" for studying. For both staff and pupils, an easy-to-understand start to making a computer work can be by using form of "computer graphics"—that is, using a computer to produce a visual image rather than pages of facts and figures which may be difficult to interpret.

As a first attempt, some pattern, diagram or drawing can be more exciting and therefore more encouraging, than masses of letters and numbers which computers can spew out by the mile.

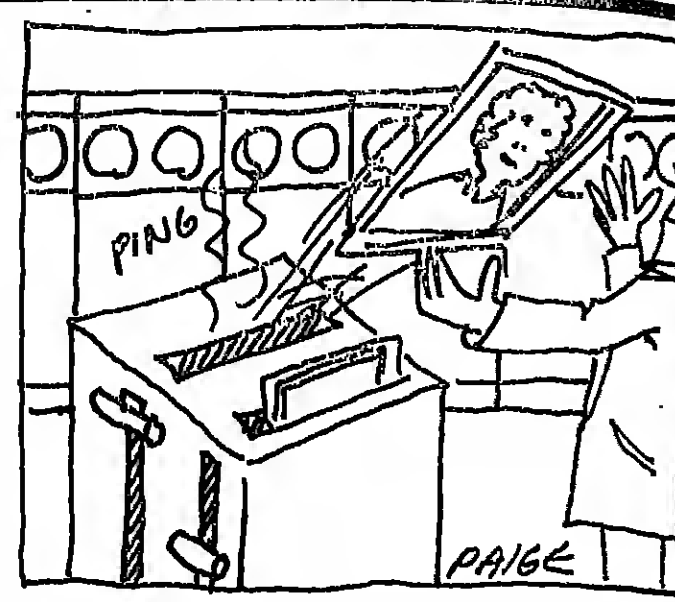
To produce such a pattern or drawing calls for the use of a clearly defined sequence of basic computing principles, much like learning to drive a car, and can therefore be justified as a viable computer study—not just wasting expensive computer time.

Standard computer programmes, which are instructions for use, or "recipes", held by computer centres or computer enthusiasts, explain how a user can set about giving directions to a computer to produce a particular "masterpiece".

Sympathetic computer staff or enthusiasts who can explain themselves in normal English and with patience will help any newcomer over these initial stages.

The art and design department in any school with an emphasis on design studies is an obvious starting point for computer studies. The essentials of computing, namely the basic principles of design—initial examination of the true nature of a problem; determination of logical steps to solve the problem; decision on the method of achieving the solution.

Practice with these basic design principles of logical thinking and accurate calculation using a computer can improve a pupil's educational experience and study of any subject, not just computing. The speed with which a computer can prove that a user has made a mistake in computing instructions provides a solitary exercise in the



value of accuracy, an objective not so easily tested in some other subjects.

Pupils can quickly see a return for their efforts. The drawing on the screen is usually a simple line drawing, but it can be made more complex and detailed as the pupil's skills improve. This identification and correction can be a fascinating chore and an encouragement to beginners to keep trying.

These budding computer users soon realize that it is rarely the computer that makes a mistake. Usually, mistakes are in the instructions or data given to the computer by the user.

Art, design and craft departments by schools and many colleges may have access to sophisticated computer equipment that will produce drawings or visual aids. This problem can only be resolved by some shopping around by dedicated staff. But the oft-repeated axiom of the computer specialist, willing to help will be, to begin with, keep it small and keep it simple.

It is now recognized that computer education in schools is important at both vocational and social levels—vocational in order to meet the growing demand for the great number of people who will be needed in people computing their career, socially because pupils are growing up into a world where computing in some form or another will be influencing every aspect of their lives.

It is the ease of getting access to a computer by using graphics programmes which is the most interesting aspect of the new technology. Computer graphics makes it possible for pupils who already recognize the power of the computer, to extend their studies, but also provide an introduction that can capture the interest of pupils who

SECONDARY

Headships

Continued from page 38

HAMPSHIRE

Headship

Continued from page 38

HAMPSHIRE

Headship

Continued from page 38

HAMPSHIRE

Headship

Continued from page 38

HAMPSHIRE

Headship

Continued from page 38

HAMPSHIRE

Headship

Continued from page 38

HAMPSHIRE

Headship

Continued from page 38

HAMPSHIRE

Headship

Continued from page 38

HAMPSHIRE

Headship

Continued from page 38

HAMPSHIRE

Headship

Continued from page 38

HAMPSHIRE

Headship

Continued from page 38

HAMPSHIRE

Headship

Continued from page 38

HAMPSHIRE

Headship

Continued from page 38

HAMPSHIRE

Headship

Continued from page 38

HAMPSHIRE

Headship

Continued from page 38

HAMPSHIRE

Headship

Continued from page 38

HAMPSHIRE

Headship

Continued from page 38

HAMPSHIRE

Headship

Continued from page 38

HAMPSHIRE

Headship

Continued from page 38

HAMPSHIRE

Headship

Continued from page 38

HAMPSHIRE

Headship

Continued from page 38

HAMPSHIRE

Headship

Continued from page 38

HAMPSHIRE

Headship

Continued from page 38

HAMPSHIRE

Headship

Continued from page 38

HAMPSHIRE

Headship

Continued from page 38

HAMPSHIRE

Headship

Continued from page 38

HAMPSHIRE

Headship

Continued from page 38

HAMPSHIRE

Headship

Continued from page 38

HAMPSHIRE

Headship

Continued from page 38

HAMPSHIRE

Headship

Continued from page 38

HAMPSHIRE

Headship

Continued from page 38

HAMPSHIRE

Headship

Continued from page 38

HAMPSHIRE

Headship

Continued from page 38

HAMPSHIRE

Headship

Continued from page 38

HAMPSHIRE

Headship

Continued from page 38

HAMPSHIRE

Headship

Continued from page 38

HAMPSHIRE

Headship

Continued from page 38

HAMPSHIRE

Headship

Continued from page 38

HAMPSHIRE

Headship

Continued from page 38

HAMPSHIRE

Headship

Continued from page 38

HAMPSHIRE

Headship

Continued from page 38

HAMPSHIRE

Headship

Continued from page 38

HAMPSHIRE

Headship

Continued from page 38

HAMPSHIRE

Headship

Continued from page 38

HAMPSHIRE

Headship

Continued from page 38

HAMPSHIRE

Headship

Continued from page 38

HAMPSHIRE

Headship

Continued from page 38

HAMPSHIRE

Headship

Continued from page 38

HAMPSHIRE

Headship

Continued from page 38

HAMPSHIRE

Headship

Continued from page 38

HAMPSHIRE

Headship

Continued from page 38

HAMPSHIRE

Headship

Continued from page 38

HAMPSHIRE

Headship

Continued from page 38

HAMPSHIRE

Headship

Continued from page 38

HAMPSHIRE

Headship

Continued from page 38

HAMPSHIRE

Headship

Continued from page 38

HAMPSHIRE

Headship

Continued from page 38

HAMPSHIRE

Headship

Continued from page 38

HAMPSHIRE

Headship

Continued from page 38

HAMPSHIRE

Headship

Continued from page 38

HAMPSHIRE

Headship

Continued from page 38

HAMPSHIRE

Headship

Continued from page 38

HAMPSHIRE

Headship

Continued from page 38

HAMPSHIRE

Headship

Continued from page 38

HAMPSHIRE

Headship

Continued from page 38

HAMPSHIRE

Headship

Continued from page 38

HAMPSHIRE

Headship

Continued from page 38

HAMPSHIRE

Headship

Continued from page 38

HAMPSHIRE

Headship

Continued from page 38

HAMPSHIRE

Headship

Continued from page 38

HAMPSHIRE

Headship

Continued from page 38

HAMPSHIRE

Headship

Continued from page 38

HAMPSHIRE

Headship

Continued from page 38

HAMPSHIRE

Headship

Continued from page 38

HAMPSHIRE

Headship

Continued from page 38

HAMPSHIRE

Headship

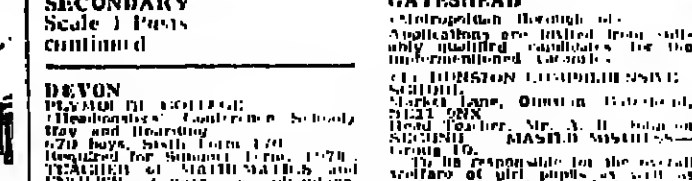
Continued from page 38

HAMPSHIRE

Headship

Continued from page 38

</



Plymouth Cottage, Lord Park, Plymouth PL6 6BN, with full details and line numbers at two references.

SALES
CLARK (formerly, apt. 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 9

Education Department

County Secondary Schools

Scale 2 Posts & Above

Unless otherwise stated, for all posts in this section, [quali-
fying] persons [qualifying] for consideration must have the names of
two [three] should be sent immediately, together with
stamped addressed envelope to Head of School,

**Boldmere School, St. Michael's Road,
Sutton Coldfield B73 5SY**

(12-18, mixed comprehensive, 750 pupils)
Required for English or September, HEAD OF LANGUAGES
[Scale 3]. Function is to present material to O.G.E. 'A' level
and in addition in teaching this, the successful applicant
will be expected to initiate and develop German as a second
language. Completed forms are to be returned to the school
by 31st February, 1975.

Ladywood School, Freshall Street B16 6QT
Scale 2/3 BIOLOGY.

Teacher to take charge of the organization and adminis-
tration of Biology, including advice on 'A' and 'O' level and
C.S.E.

Oldknow School, Oldknow Road B10 0HU
HEAD OF ENGLISH, Scale 3

Scale 4 available for fully qualified and experienced
teacher. Responsibility for English and Library provision
throughout school. An enthusiastic development of Language
across the curriculum would be expected.

Salisbury School, Sellicks Lane B9 6RX
Mixed, 755 pupils, with a large academic Sixth Form.
Second to succeed him, HEAD OF ART, Scale 3, in a
flourishing department.

Sir Wilfrid MacLellan School, Grassall Lane The

7 Form antix, fully developed, condensation. Comprehensive

1,200 pupils, (46 in Sixth Form.)
NCAO OF HOME ECONOMICS DEPARTMENT (Sole 3 or 4 for multiple candidate).
 Well qualified, experienced teacher, able to lead strong department, taking responsibility for organisation of current C.S.E. 'O' and 'A' level work, and development of new courses.

County Secondary Schools

Scale 1 Posts

Unless otherwise stated, requests for application forms for Scale 1 posts should be sent to Head of School as soon as possible, together with the names of 2 referees and a stamped addressed envelope.

Alderley School, Shard End B34 7JA
 (1890 boys)

Required for the beginning of the Summer Term if possible:

- Assistant Teacher for **MATHEMATICS**, mathematics work available in the afternoon.
- Assistant Teacher for **METALWORK** with an interest in design and decorative work.
- Assistant Teacher for **MODERN LANGUAGES** is the **LANGUAGE DEPARTMENT** (French). The ability to help in the Art Department will be an added recommendation but is not essential.

Aston Meier School, Phillips Street B8 4PZ
 Required Easter, teacher of **MATHEMATICS**, Permanent post, but applicants Teaching for a temporary post will be considered for the Summer Term. B.F.A. Allowance.

Boldmere School, St. Michael's Road, Sutton

Coldfield 873 55Y
12-18, mixed comprehensive, 760 pupils

Qualified, Easter or September, Teacher of CHEMISTRY with some MATHEMATICS. "A" level teaching is available for a suitably qualified person. Willingness to assist in out-of-school activities will be an advantage. Previous applicants not re-spectfully. Completed forms to be returned to the school by 20 February, 1976.

**Sheldon Heath School, Sheldon Heath Road
B26 2RZ**

Teacher in COMMERCE AND ECONOMICS.
Work at C.S.E. level. Level 2 available in a well-equipped department. Ability to teach office skills an advantage, though not essential.
There is a scheme for sentence with removal appeal.

**BIRMINGHAM
CITY COUNCIL**

CONFIDENTIAL

Further Education

Applications are invited for the unreserved posts. All candidates should have relevant industrial or commercial experience where appropriate. Teacher training would be an advantage but training can be given on an in-service basis.

LECTURERS

Ayr Technical College, Dam Park, Ayr

Professional Cookery

Relevant professional qualification.

Barmulloch College, 186 Rye Road, Glasgow G21 3JY

Secretarial Subjects

Degree, Diploma or other appropriate qualification.

Bell College of Technology, Alameda Street, Hamilton

Financial Accounting and Taxation

Degree and/or appropriate professional qualification.

Production Management/Work Study and O. & M.

Degree and/or Professional membership of appropriate institution.

Marketing and one chosen from Economics, Business and Financial Management, Purchasing

Honours Degree or equivalent in Marketing/Economics or related subjects.

Glasgow College of Nautical Studies, 21 Thistle Street, Glasgow G5 9XB

Navigation Subjects

Masters Foreign Going DoT Certificate or Degree in Nautical Studies

Marine Engineering

First Class DoT Certificate of Competency preferably with OND or HNC Engineering.

Management Studies & Shipping Organisation

Degree in Nautical Studies.

Degree or HND in Management or Business Studies.

Experience in shipping or transport advantageous.

Mathematics and Meteorology

Degree in Mathematics with Meteorological experience or appropriate qualification.

Kilmarnock Technical College, Holehouse Road, Kilmarnock

Social Studies

Degree, preferably Hons. In an appropriate discipline. Some experience of teaching Trade Union Studies an advantage.

Motherwell Technical College, Dalziel Drive, Motherwell ML1 2DD

Health Studies with particular reference to young handicapped persons. Senior Lecturer*

Degree and a Post Graduate Qualification relevant to the education of the handicapped. * Until such time as the Government pay policy allows otherwise, the successful candidate will be appointed to an SL1 post but will be paid meantime on the Lect. 'B' scale.

Business Studies (Typing and Shorthand)

Degree, Dip. Comm. or equivalent.

The Reid Kerr College, Renfrew Road, Paisley

Secretarial Studies

Degree, Diploma in Commerce, SCOTREC Adv. Secretarial Certificate or relevant RSA Certificate.

Salaries

Senior Lecturer (SL11 Scale)	£5040 (£5111) - £5012 (£5111)
Lecturer 'A'	£3216 (£4781) - £3012 (£5111)
Lecturer 'B'	£2667 (£4521) - £2456 (£5111)

* Figures in brackets are Phase I and Phase II supplements which should be added to the salaries shown.

Pricing on salary scales will be given for relevant experience.

Forms of application and further particulars can be obtained from the College concerned to whom completed applications should be returned not later than 3rd February, 1978.

Lect 'B'

Lect 'B' - Temporary

Lect 'A'

Lect 'A'

Lect 'B'

Lect 'B'

Lect 'B'

Lect 'B'

Lect 'B'

Lect 'B'

Lect 'B'

Lect 'B'

Lect 'B'

Lect 'B'

Lect 'B'

Lect 'B'

Lect 'B'

Lect 'B'

COLLEGES OF FURTHER EDUCATION continued

CHESHIRE
EDUCATION AUTHORITY
100, Victoria Road, Warrington, Cheshire, WA1 1JY
Telephone: 0925 22211

CUMBERLAND
EDUCATION AUTHORITY
100, Victoria Road, Warrington, Cheshire, WA1 1JY
Telephone: 0925 22211

GLoucestershire
EDUCATION AUTHORITY
100, Victoria Road, Warrington, Cheshire, WA1 1JY
Telephone: 0925 22211

GLoucestershire
EDUCATION AUTHORITY
100, Victoria Road, Warrington, Cheshire, WA1 1JY
Telephone: 0925 22211

GLoucestershire
EDUCATION AUTHORITY
100, Victoria Road, Warrington, Cheshire, WA1 1JY
Telephone: 0925 22211

GLoucestershire
EDUCATION AUTHORITY
100, Victoria Road, Warrington, Cheshire, WA1 1JY
Telephone: 0925 22211

GLoucestershire
EDUCATION AUTHORITY
100, Victoria Road, Warrington, Cheshire, WA1 1JY
Telephone: 0925 22211

GLoucestershire
EDUCATION AUTHORITY
100, Victoria Road, Warrington, Cheshire, WA1 1JY
Telephone: 0925 22211

GLoucestershire
EDUCATION AUTHORITY
100, Victoria Road, Warrington, Cheshire, WA1 1JY
Telephone: 0925 22211

GLoucestershire
EDUCATION AUTHORITY
100, Victoria Road, Warrington, Cheshire, WA1 1JY
Telephone: 0925 22211

THE TIMES EDUCATIONAL SUPPLEMENT

GLoucestershire
EDUCATION AUTHORITY
100, Victoria Road, Warrington, Cheshire, WA1 1JY
Telephone: 0925 22211

GLoucestershire
EDUCATION AUTHORITY
100, Victoria Road, Warrington, Cheshire, WA1 1JY
Telephone: 0925 22211

GLoucestershire
EDUCATION AUTHORITY
100, Victoria Road, Warrington, Cheshire, WA1 1JY
Telephone: 0925 22211

GLoucestershire
EDUCATION AUTHORITY
100, Victoria Road, Warrington, Cheshire, WA1 1JY
Telephone: 0925 22211

GLoucestershire
EDUCATION AUTHORITY
100, Victoria Road, Warrington, Cheshire, WA1 1JY
Telephone: 0925 22211

GLoucestershire
EDUCATION AUTHORITY
100, Victoria Road, Warrington, Cheshire, WA1 1JY
Telephone: 0925 22211

GLoucestershire
EDUCATION AUTHORITY
100, Victoria Road, Warrington, Cheshire, WA1 1JY
Telephone: 0925 22211

GLoucestershire
EDUCATION AUTHORITY
100, Victoria Road, Warrington, Cheshire, WA1 1JY
Telephone: 0925 22211

GLoucestershire
EDUCATION AUTHORITY
100, Victoria Road, Warrington, Cheshire, WA1 1JY
Telephone: 0925 22211

GLoucestershire
EDUCATION AUTHORITY
100, Victoria Road, Warrington, Cheshire, WA1 1JY
Telephone: 0925 22211

THE TIMES EDUCATIONAL SUPPLEMENT

GLoucestershire
EDUCATION AUTHORITY
100, Victoria Road, Warrington, Cheshire, WA1 1JY
Telephone: 0925 22211

GLoucestershire
EDUCATION AUTHORITY
100, Victoria Road, Warrington, Cheshire, WA1 1JY
Telephone: 0925 22211

GLoucestershire
EDUCATION AUTHORITY
100, Victoria Road, Warrington, Cheshire, WA1 1JY
Telephone: 0925 22211

GLoucestershire
EDUCATION AUTHORITY
100, Victoria Road, Warrington, Cheshire, WA1 1JY
Telephone: 0925 22211

GLoucestershire
EDUCATION AUTHORITY
100, Victoria Road, Warrington, Cheshire, WA1 1JY
Telephone: 0925 22211

GLoucestershire
EDUCATION AUTHORITY
100, Victoria Road, Warrington, Cheshire, WA1 1JY
Telephone: 0925 22211

GLoucestershire
EDUCATION AUTHORITY
100, Victoria Road, Warrington, Cheshire, WA1 1JY
Telephone: 0925 22211

GLoucestershire
EDUCATION AUTHORITY
100, Victoria Road, Warrington, Cheshire, WA1 1JY
Telephone: 0925 22211

GLoucestershire
EDUCATION AUTHORITY
100, Victoria Road, Warrington, Cheshire, WA1 1JY
Telephone: 0925 22211

GLoucestershire
EDUCATION AUTHORITY
100, Victoria Road, Warrington, Cheshire, WA1 1JY
Telephone: 0925 22211

THE TIMES EDUCATIONAL SUPPLEMENT

GLoucestershire
EDUCATION AUTHORITY
100, Victoria Road, Warrington, Cheshire, WA1 1JY
Telephone: 0925 22211

GLoucestershire
EDUCATION AUTHORITY
100, Victoria Road, Warrington, Cheshire, WA1 1JY
Telephone: 0925 22211

GLoucestershire
EDUCATION AUTHORITY
100, Victoria Road, Warrington, Cheshire, WA1 1JY
Telephone: 0925 22211

GLoucestershire
EDUCATION AUTHORITY
100, Victoria Road, Warrington, Cheshire, WA1 1JY
Telephone: 0925 22211

GLoucestershire
EDUCATION AUTHORITY
100, Victoria Road, Warrington, Cheshire, WA1 1JY
Telephone: 0925 22211

GLoucestershire
EDUCATION AUTHORITY
100, Victoria Road, Warrington, Cheshire, WA1 1JY
Telephone: 0925 22211

GLoucestershire
EDUCATION AUTHORITY
100, Victoria Road, Warrington, Cheshire, WA1 1JY
Telephone: 0925 22211

GLoucestershire
EDUCATION AUTHORITY
100, Victoria Road, Warrington, Cheshire, WA1 1JY
Telephone: 0925 22211

GLoucestershire
EDUCATION AUTHORITY
100, Victoria Road, Warrington, Cheshire, WA1 1JY
Telephone: 0925 22211

GLoucestershire
EDUCATION AUTHORITY
100, Victoria Road, Warrington, Cheshire, WA1 1JY
Telephone: 0925 22211

SHEFFIELD EDUCATION

STANNISTON COLLEGE

SHEFFIELD

Myers Grove Lane, Sheffield S6 5JL

DEPARTMENT OF GENERAL STUDIES AND MANAGEMENT

Applications are invited for the post of —

LECTURER GRADE II IN GENERAL STUDIES

Required for May 1, 1978, or earlier by arrangement. To be responsible for the 'Liberal Studies' activities of the Department and to assist with curriculum development work in General Studies. Salary scale: £3,279 to £5,493 plus £312 supplement and further supplement of £132 to £160. Further particulars and application forms may be obtained from the Chief Administrative Officer (Reference JM), on receipt of a stamped addressed envelope, to whom it should be returned within 14 days of the appearance of this advertisement.

South Cheshire

College

SENIOR LECTURER

HEALTH & SOCIAL CARE COURSES

Applications are invited from persons suitably qualified in one or both areas of work.

The College Dane Bank Avenue CREWE

Telephone 69133

Lothian Regional Council

ESK VALLEY COLLEGE

LECTURER 'B' IN PHYSICAL EDUCATION/GENERAL STUDIES

Salary on scale £3,116 to £4,870. Required to teach physical education and recreational activities to vocational students. The successful applicant will be qualified in Physical Education. Further particulars and application forms from: The Principal, Esk Valley College, Newhall Road, Cullinston, EH22 5AE.

TELFORD COLLEGE OF FURTHER EDUCATION LECTURER 'B' IN BUILDING SUBJECTS

Salary on scale £2,119 to £4,678. To teach Building Quantities, Construction and Services in the Department of Building; the ability to teach Land Surveying would be an advantage. Applicants should have a degree, MIB, NCS or an equivalent qualification.

SENIOR LECTURER I (MODERN LANGUAGES)

Salary on scale £3,119 to £5,881 (starting point dependent on Government pay policy). Applicants must be teacher-qualified graduates in Modern Languages. Experience of teaching languages and (where appropriate) further education is essential. Knowledge of language laboratory work desirable. The post is in the Department of General Education and work includes the organisation and development of language and liberal studies.

LECTURER 'B' IN PHYSICAL EDUCATION

Salary on scale £3,119 to £4,678. Applicants must be qualified teachers of physical education, able to offer a wide range of activities and be prepared to take an active part in the development of the students' recreational programme. Qualifications in outdoor pursuits would be an advantage. Further particulars and application forms from: The Principal, Telford College of Further Education, Crowle Hill, Telford, SH20 2JZ.

WEST LOTHIAN COLLEGE OF FURTHER EDUCATION SENIOR LECTURER I (SOCIAL AND RECREATIONAL EDUCATION)

Salary on scale £3,119 to £5,881 (starting point dependent on Government pay policy). Applicants must be teacher-qualified graduates in Social and Recreational Education. Experience of teaching languages and (where appropriate) further education is essential. Knowledge of language laboratory work desirable. The post is in the Department of General Education and work includes the organisation and development of language and liberal studies.

LECTURER 'B' (SOCIAL AND RECREATIONAL EDUCATION)

Salary on scale £3,119 to £4,678. Two posts available for persons interested in developing existing courses and to develop new work in the areas of Social and Recreational Education. Those interested will be required to assist in teaching General Studies classes.

The successful applicant must hold appropriate qualifications either in Physical Education or in the area of Community Studies. Further particulars and application forms from: THE PRINCIPAL, WEST LOTHIAN COLLEGE OF FURTHER EDUCATION, 100, Victoria Road, Warrington, Cheshire, WA1 1JY.

Child Care Officer

Residential Grade 4—£2,983-£3,575
(Inclusive of supplements)

An experienced and preferably qualified Child Care Officer is required for Norton School, Kington, a Community Home School for 80 boys aged 14-19 years which is now part of the Child Care Service in Warwickshire. The School is situated in a very pleasant South Warwickshire village near to Warwick, Stratford-upon-Avon and the Cotswolds. The principal aim of the school is the rehabilitation of the boys and the personal development of the boys and the ability to raise the self-esteem and the ability to work with the teaching staff, social workers and families. This post would offer valuable experience for teachers who wish to work in a residential setting in a non-teaching capacity or for achieving residential social workers who wish to broaden their experience. Accommodation is available to rent in a service tenancy and the ability to discuss the post with potential applicants.

Application forms are available from the Director of Social Services, Shire Hall, Warwick, CV34 3EX. Closing date: 1st February 1978.



Warwickshire

CAREERS OFFICER

HARLOW (POST NO. CS052)

A.P.3 (£2,929-£3,282 plus £120 p.a. outer fringe area allowance plus Phase I and II Supplement) for those who have completed a course of training for the Careers Service.

OR
A.P.2/3 (£2,929-£3,282 plus £120 p.a. outer fringe area allowance plus Phase I and II Supplement) for university graduates or those holding comparable qualifications. Candidates should have the ability to tackle the problem of giving careers advice to a mixed ability group of young people. Experience in teaching, industry or commerce would be an advantage.

Application forms and further details from the County Education Officer (G), P.O. Box 47, Thraenodde House, Market Road, Chelmsford, CM1 1LD (Chelmsford 67222, ext. 2608). Closing date for applications is two weeks from the appearance of this advertisement.



Essex County Council

Education Department

Youth and Community Tutor

(2 posts) Woodway Park School & Community College
J.N.C. 3, £4,265-£4,749 (including pay code supplements)

Applications are invited from suitably qualified and experienced persons for the posts of Youth and Community Tutor at this purpose-built Comprehensive School which has facilities designed for use by the School and the Community.

The School is developing as a Community College in association with neighbouring Community Associations. The posts therefore provide positive opportunities for broad based community work. The successful candidates will work with the Youth and Community staff based on the school and develop initiatives with the Community Associations and other groups and agencies within the area.

Application forms and further particulars from the Director of Education, Council Offices, Earl Street, Coventry, Tel: 25555, ext. 2292.

Returnable by 3rd February 1978.



Coventry

Community Homes and Associated Institutions

HAMPSHIRE SOCIAL SERVICES

WINCHESTER DISTRICT

WINCHESTER DISTRICT

WINCHESTER DISTRICT

WINCHESTER DISTRICT

WINCHESTER DISTRICT

WINCHESTER DISTRICT

WINCHESTER DISTRICT

WINCHESTER DISTRICT

WINCHESTER DISTRICT

WINCHESTER DISTRICT

WINCHESTER DISTRICT

WINCHESTER DISTRICT

WINCHESTER DISTRICT

WINCHESTER DISTRICT

WINCHESTER DISTRICT

WINCHESTER DISTRICT

WINCHESTER DISTRICT

WINCHESTER DISTRICT

WINCHESTER DISTRICT

WINCHESTER DISTRICT

WINCHESTER DISTRICT

WINCHESTER DISTRICT

WINCHESTER DISTRICT

WINCHESTER DISTRICT

WINCHESTER DISTRICT

WINCHESTER DISTRICT

WINCHESTER DISTRICT

WINCHESTER DISTRICT

WINCHESTER DISTRICT

WINCHESTER DISTRICT

WINCHESTER DISTRICT

WINCHESTER DISTRICT

WINCHESTER DISTRICT

WINCHESTER DISTRICT

WINCHESTER DISTRICT

WINCHESTER DISTRICT

WINCHESTER DISTRICT

WINCHESTER DISTRICT

WINCHESTER DISTRICT

WINCHESTER DISTRICT

WINCHESTER DISTRICT

WINCHESTER DISTRICT

WINCHESTER DISTRICT

WINCHESTER DISTRICT

WINCHESTER DISTRICT

WINCHESTER DISTRICT

WINCHESTER DISTRICT

WINCHESTER DISTRICT

WINCHESTER DISTRICT

WINCHESTER DISTRICT

WINCHESTER DISTRICT

WINCHESTER DISTRICT

WINCHESTER DISTRICT

WINCHESTER DISTRICT

WINCHESTER DISTRICT

WINCHESTER DISTRICT

WINCHESTER DISTRICT

WINCHESTER DISTRICT

WINCHESTER DISTRICT

WINCHESTER DISTRICT

WINCHESTER DISTRICT

WINCHESTER DISTRICT

WINCHESTER DISTRICT

WINCHESTER DISTRICT

WINCHESTER DISTRICT

WINCHESTER DISTRICT

WINCHESTER DISTRICT

WINCHESTER DISTRICT

WINCHESTER DISTRICT

WINCHESTER DISTRICT

WINCHESTER DISTRICT

WINCHESTER DISTRICT

WINCHESTER DISTRICT

WINCHESTER DISTRICT

WINCHESTER DISTRICT

WINCHESTER DISTRICT

WINCHESTER DISTRICT

WINCHESTER DISTRICT

WINCHESTER DISTRICT

WINCHESTER DISTRICT

WINCHESTER DISTRICT

WINCHESTER DISTRICT

WINCHESTER DISTRICT

WINCHESTER DISTRICT

WINCHESTER DISTRICT

WINCHESTER DISTRICT

WINCHESTER DISTRICT

WINCHESTER DISTRICT

WINCHESTER DISTRICT

WINCHESTER DISTRICT

Youth and Community Service

BIRMINGHAM (City of)

BIRMINGHAM (City of)

BIRMINGHAM (City of)

BIRMINGHAM (City of)

BIRMINGHAM (City of)

BIRMINGHAM (City of)

BIRMINGHAM (City of)

BIRMINGHAM (City of)

BIRMINGHAM (City of)

BIRMINGHAM (City of)

BIRMINGHAM (City of)

BIRMINGHAM (City of)

BIRMINGHAM (City of)

BIRMINGHAM (City of)

BIRMINGHAM (City of)

BIRMINGHAM (City of)

BIRMINGHAM (City of)

BIRMINGHAM (City of)

BIRMINGHAM (City of)

BIRMINGHAM (City of)

BIRMINGHAM (City of)

BIRMINGHAM (City of)

BIRMINGHAM (City of)

BIRMINGHAM (City of)

BIRMINGHAM (City of)

BIRMINGHAM (City of)

BIRMINGHAM (City of)

BIRMINGHAM (City of)

BIRMINGHAM (City of)

BIRMINGHAM (City of)

BIRMINGHAM (City of)

BIRMINGHAM (City of)

BIRMINGHAM (City of)

BIRMINGHAM (City of)

BIRMINGHAM (City of)

BIRMINGHAM (City of)

BIRMINGHAM (City of)

BIRMINGHAM (City of)

BIRMINGHAM (City of)

BIRMINGHAM (City of)

BIRMINGHAM (City of)

BIRMINGHAM (City of)

BIRMINGHAM (City of)

BIRMINGHAM (City of)

BIRMINGHAM (City of)

BIRMINGHAM (City of)

BIRMINGHAM (City of)

BIRMINGHAM (City of)

BIRMINGHAM (City of)

BIRMINGHAM (City of)

BIRMINGHAM (City of)

BIRMINGHAM (City of)

BIRMINGHAM (City of)

BIRMINGHAM (City of)

BIRMINGHAM (City of)

BIRMINGHAM (City of)

BIRMINGHAM (City of)

BIRMINGHAM (City of)

BIRMINGHAM (City of)

BIRMINGHAM (City of)

BIRMINGHAM (City of)

BIRMINGHAM (City of)

BIRMINGHAM (City of)

BIRMINGHAM (City of)

BIRMINGHAM (City of)

BIRMINGHAM (City of)

BIRMINGHAM (City of)

BIRMINGHAM (City of)

BIRMINGHAM (City of)

BIRMINGHAM (City of)

BIRMINGHAM (City of)

BIRMINGHAM (City of)

BIRMINGHAM (City of)

BIRMINGHAM (City of)

BIRMINGHAM (City of)

BIRMINGHAM (City of)

BIRMINGHAM (City of)

BIRMINGHAM (City of)

BIRMINGHAM (City of)

BIRMINGHAM (City of)

BIRMINGHAM (City of)

BIRMINGHAM (City of)

BIRMINGHAM (City of)

BIRMINGHAM (City of)

BIRMINGHAM (City of)

BIRMINGHAM (City of)

BIRMINGHAM (City of)

BIRMINGHAM (City of)

BIRMINGHAM (City of)

BIRMINGHAM (City of)

BIRMINGHAM (City of)

BIRMINGHAM (City of)

BIRMINGHAM (City of)

ISLE OF WIGHT COUNTY COUNCIL

EDUCATION DEPARTMENT

EDUCATION DEPARTMENT

EDUCATION DEPARTMENT

EDUCATION DEPARTMENT

EDUCATION DEPARTMENT

EDUCATION DEPARTMENT

EDUCATION DEPARTMENT

EDUCATION DEPARTMENT

EDUCATION DEPARTMENT

EDUCATION DEPARTMENT

EDUCATION DEPARTMENT

EDUCATION DEPARTMENT

EDUCATION DEPARTMENT

EDUCATION DEPARTMENT

EDUCATION DEPARTMENT

EDUCATION DEPARTMENT

EDUCATION DEPARTMENT

EDUCATION DEPARTMENT

EDUCATION DEPARTMENT

EDUCATION DEPARTMENT

EDUCATION DEPARTMENT

EDUCATION DEPARTMENT

EDUCATION DEPARTMENT

EDUCATION DEPARTMENT

EDUCATION DEPARTMENT

EDUCATION DEPARTMENT

EDUCATION DEPARTMENT

EDUCATION DEPARTMENT

EDUCATION DEPARTMENT

EDUCATION DEPARTMENT

EDUCATION DEPARTMENT

EDUCATION DEPARTMENT

EDUCATION DEPARTMENT

EDUCATION DEPARTMENT

EDUCATION DEPARTMENT

EDUCATION DEPARTMENT

EDUCATION DEPARTMENT

EDUCATION DEPARTMENT

EDUCATION DEPARTMENT

EDUCATION DEPARTMENT

EDUCATION DEPARTMENT

EDUCATION DEPARTMENT

EDUCATION DEPARTMENT

EDUCATION DEPARTMENT

EDUCATION DEPARTMENT

EDUCATION DEPARTMENT

EDUCATION DEPARTMENT

EDUCATION DEPARTMENT

EDUCATION DEPARTMENT

EDUCATION DEPARTMENT

EDUCATION DEPARTMENT

EDUCATION DEPARTMENT

EDUCATION DEPARTMENT

EDUCATION DEPARTMENT

EDUCATION DEPARTMENT

EDUCATION DEPARTMENT

EDUCATION DEPARTMENT

EDUCATION DEPARTMENT

EDUCATION DEPARTMENT

EDUCATION DEPARTMENT

EDUCATION DEPARTMENT

EDUCATION DEPARTMENT

EDUCATION DEPARTMENT

EDUCATION DEPARTMENT

EDUCATION DEPARTMENT

EDUCATION DEPARTMENT

EDUCATION DEPARTMENT

EDUCATION DEPARTMENT

EDUCATION DEPARTMENT

BOTSWANA

Chief Technical Education Officer

c. 87,955-29,880

This is an exciting post requiring substantial industrial, teaching, administrative and overseas experience, ability to handle finance and development programmes and, preferably, graduate or professional qualifications in engineering.

The Chief Technical Education Officer will be responsible to the Permanent Secretary, Ministry of Education, for the Vocational Training Division of the Ministry whose functions include oversight of Government's technical training institutions, support and guidance to Brigades, technical instructor training programmes, liaison with government departments, parastatal and private enterprises. Some graduate training will be required.

Appointment on agreement to Government of Botswana for 30 to 36 months initially commencing April, 1978, or as soon as possible thereafter.

Twenty-five per cent terminal gratuity on basic salary; free passage; subsidised accommodation; holiday pay; pension; education allowances for children; appointment grant and interest-free car loan are payable in certain circumstances.

Applicants, who should be UK citizens, can obtain further details and application form from the Recruitment Unit, TETOC (Technical Education and Training Organisation for Developing Countries), 35/37 Grosvenor Gardens, London SW1W 0BS.

Tetoc

ADMINISTRATION

Local Education Authority continued

NORTH TYNESIDE
(Metropolitan Council)
Applications are invited for a post of **CHIEF TECHNICAL EDUCATION OFFICER** in the Technical Education Division. The post is a full-time position, grade 2, with a salary of £10,000 p.a. to £20,000 p.a. depending on experience. The successful candidate will be responsible for the technical education of the district, including the management of technical schools, colleges and training centres. The post holder will also be responsible for the development of technical education in the district. Applications should be sent to the Director of Education, North Tyneside, 100, Victoria Road, South Shields, Tyne and Wear, NE33 1JH. Closing date: 15th February 1978.

NORTH YORKSHIRE
(Metropolitan Council)
Applications are invited for a post of **CHIEF TECHNICAL EDUCATION OFFICER** in the Technical Education Division. The post is a full-time position, grade 2, with a salary of £10,000 p.a. to £20,000 p.a. depending on experience. The successful candidate will be responsible for the technical education of the district, including the management of technical schools, colleges and training centres. The post holder will also be responsible for the development of technical education in the district. Applications should be sent to the Director of Education, North Yorkshire, 100, Victoria Road, South Shields, Tyne and Wear, NE33 1JH. Closing date: 15th February 1978.

SALOP
(Metropolitan Council)
Applications are invited for a post of **CHIEF TECHNICAL EDUCATION OFFICER** in the Technical Education Division. The post is a full-time position, grade 2, with a salary of £10,000 p.a. to £20,000 p.a. depending on experience. The successful candidate will be responsible for the technical education of the district, including the management of technical schools, colleges and training centres. The post holder will also be responsible for the development of technical education in the district. Applications should be sent to the Director of Education, Salop, 100, Victoria Road, South Shields, Tyne and Wear, NE33 1JH. Closing date: 15th February 1978.

SUTTON
(Metropolitan Council)
Applications are invited for a post of **CHIEF TECHNICAL EDUCATION OFFICER** in the Technical Education Division. The post is a full-time position, grade 2, with a salary of £10,000 p.a. to £20,000 p.a. depending on experience. The successful candidate will be responsible for the technical education of the district, including the management of technical schools, colleges and training centres. The post holder will also be responsible for the development of technical education in the district. Applications should be sent to the Director of Education, Sutton, 100, Victoria Road, South Shields, Tyne and Wear, NE33 1JH. Closing date: 15th February 1978.

THE SPASTICS SOCIETY
(Metropolitan Council)
Applications are invited for a post of **CHIEF TECHNICAL EDUCATION OFFICER** in the Technical Education Division. The post is a full-time position, grade 2, with a salary of £10,000 p.a. to £20,000 p.a. depending on experience. The successful candidate will be responsible for the technical education of the district, including the management of technical schools, colleges and training centres. The post holder will also be responsible for the development of technical education in the district. Applications should be sent to the Director of Education, The Spastics Society, 100, Victoria Road, South Shields, Tyne and Wear, NE33 1JH. Closing date: 15th February 1978.

TEACH IN CANADA
WANT A CHANG? A School Division in Manitoba, Canada, requires enthusiastic teachers to teach in the field of business education. The post is a full-time position, grade 2, with a salary of £10,000 p.a. to £20,000 p.a. depending on experience. The successful candidate will be responsible for the technical education of the district, including the management of technical schools, colleges and training centres. The post holder will also be responsible for the development of technical education in the district. Applications should be sent to the Director of Education, Teach in Canada, 100, Victoria Road, South Shields, Tyne and Wear, NE33 1JH. Closing date: 15th February 1978.

GOVERNNESS TUTOR

LAUSANNE, SWITZERLAND

For four days attending boarding school with out week ends in Lausanne, ages eight, 11, 13 and 14. The boys need love, attention and help with their school work and games. Applicant must have excellent academic qualifications, references and experience for tuition in general subjects for O levels. Age 35 plus or married couple would be considered if husband is prepared to work and play with the boys when on holiday. This is a permanent position with excellent salary and free time, although you will be working during school holidays. Non smokers only. All fares paid. Interview in London. Reply to: The Secretary, 11 Euston Square, London, N.W.1.

UNIVERSITY OF PETROLEUM AND MINERALS

DAHHRAN, SAUDI ARABIA

Invites applications for the post of full-time **PHYSIOTHERAPIST** to develop and operate a comprehensive service in the treatment of sports injuries.

Applicants should have experience in all aspects of Physiotherapy and be familiar with the latest techniques and equipment in the field. It is expected that the work will be concerned mainly with the Physical Educational Department, in addition to general services offered for the University community. The University Physical Educational Department comprises of 17 specialists who offer a broad based, teaching and competitive programme of fifteen sporting activities.

Minimum regular contract for two years, renewable. Excellent salaries and allowances. Air-conditioned housing provided. Free air transportation to and from Dharhan each two-year tour. Attractive educational assistance grants for school-age dependent children. Local transportation allowance in cash each month. All earned income without Saudi taxes. Ten and a half month duty each year with 45 days vacation each.

Apply with complete resume on academic and professional background, list of references and with copies of degree including personal details such as marital status (wife's maiden name, names of children, age and sex), home and office addresses and telephone numbers to: Dharhan International Airport, P.O. Box 144, Dean of Faculty and Personnel Affairs, University of Petroleum and Minerals, Dharhan, Saudi Arabia.

A Prosperous New Year

£10,000 p.a. to £20,000 p.a. QUALIFIED MUSIC TEACHERS

BRASS INSTRUMENTS
BAGPIPES
WIND INSTRUMENTS
1 year renewable contract on married/single status.
Generous leave. Free passage.

LIBYA
MONTROSE
OVERSEAS
01-828 4975/6/7

TEACH IN CANADA
WANT A CHANG? A School Division in Manitoba, Canada, requires enthusiastic teachers to teach in the field of business education. The post is a full-time position, grade 2, with a salary of £10,000 p.a. to £20,000 p.a. depending on experience. The successful candidate will be responsible for the technical education of the district, including the management of technical schools, colleges and training centres. The post holder will also be responsible for the development of technical education in the district. Applications should be sent to the Director of Education, Teach in Canada, 100, Victoria Road, South Shields, Tyne and Wear, NE33 1JH. Closing date: 15th February 1978.

GOVERNNESS TUTOR
LAUSANNE, SWITZERLAND
For four days attending boarding school with out week ends in Lausanne, ages eight, 11, 13 and 14. The boys need love, attention and help with their school work and games. Applicant must have excellent academic qualifications, references and experience for tuition in general subjects for O levels. Age 35 plus or married couple would be considered if husband is prepared to work and play with the boys when on holiday. This is a permanent position with excellent salary and free time, although you will be working during school holidays. Non smokers only. All fares paid. Interview in London. Reply to: The Secretary, 11 Euston Square, London, N.W.1.

UNIVERSITY OF PETROLEUM AND MINERALS

DAHHRAN, SAUDI ARABIA

Invites applications for the post of full-time **PHYSICAL EDUCATIONAL SPECIALISTS**

to join its present faculty comprising of 17 Physical Educational specialists who offer a broad-based teaching and competitive programme of fifteen sporting activities.

The major games at the University are soccer, basketball, volleyball, handball, table tennis and swimming. Applicants should be able to offer high level sports qualification in one of the following:

1. Fencing
2. Squash
3. Olympic gymnastics
4. Basketball
5. Diving

Candidates should possess a premier recognised coaching award relevant to their specialist sport and show have extensive experience of coaching and/or refereeing performance of performing at a major competitive level.

Minimum regular contract for two years, renewable. Competitive salaries and allowances. Air-conditioned and furnished housing provided. Free air transportation to and from Dharhan each two-year tour. Attractive educational assistance grants for school-age dependent children. Local transportation allowance in cash each month. All earned income without Saudi taxes. Ten months duty each year with two months vacation and 45 days vacation each.

ASSISTANT MASTERS ASSOCIATION

APPOINTMENT OF GENERAL SECRETARY

Mr. A. V. S. Hutchings, C.B.E., M.A., GENERAL SECRETARY of the Assistant Masters Association, will be retiring on December 31st, 1978.

Applications are invited for this post, the successful applicant to take office from a date to be arranged. The GENERAL SECRETARY will be responsible for organising the work of the Assistant Masters Association. The post is a full-time position, grade 2, with a salary of £10,000 p.a. to £20,000 p.a. depending on experience. The successful candidate will be responsible for the technical education of the district, including the management of technical schools, colleges and training centres. The post holder will also be responsible for the development of technical education in the district. Applications should be sent to the Director of Education, Assistant Masters Association, 100, Victoria Road, South Shields, Tyne and Wear, NE33 1JH. Closing date: 15th February 1978.

NATIONAL UNION OF TEACHERS

STOKE ROCHFORD HALL

APPOINTMENT OF DIRECTOR

Stoke Rochford Hall, near Grimsby (at present the Keele College of Education) has been acquired by the National Union of Teachers as a new headquarters for its education and training centre or which facilities and accommodation will be available for other organisations and activities.

Applications are invited for the post of Director of the Centre. The person appointed will be responsible to the Board of Management for the running of the Centre, supervision of courses and commercial development, such as letting to outside bodies, and the provision of additional courses. The Director will be required to be resident in the Centre and living accommodation will be provided. Salary will be between £8,000 and £8,700 depending on qualifications and experience.

It is hoped that the successful applicant will be able to take up the post by 1st April, 1978. Further information and an application form can be obtained from the Deputy General Secretary, National Union of Teachers, Hamilton House, Mableton Place, London WC1H 9BD (Tel: 01-387 2442). Applications should be returned to the Deputy General Secretary at the above address by Tuesday, 7th February, 1978.

Can you train a Medical Representative?

We seek a Training Officer to join our established Training team which help to maintain the high reputation and success of our medical representatives.

The Company
Schering Chemicals Limited is the British subsidiary of the world's leading company in the field of hormone therapy. We are the market leaders in oral contraception and have a number of other fast developing and interesting products in differing fields.

The Job
The job is to develop and implement medical training programmes for our medical representatives informing them of the rapid changes occurring in fields of medicine related to the company's products. There is also scope for extending training activities into sales communication skills.

The Person
You will probably be in your late 20's and a graduate, preferably in a biological science, with previous teaching or training experience. You will be an effective communicator with the imagination and commitment to make a success of this challenging position.

Rewards
A minimum salary of £4,000 will be paid, but this could be considerably higher for a person with outstanding experience, qualifications and proved ability.

Applications
Write giving concise details of education and experience to:
B. C. Lancaster, Personnel Manager, Schering Chemicals Limited, The Brow, Burgess Hill, West Sussex BN15 9NE.

Dharhan International Airport, P.O. Box 144, Dean of Faculty and Personnel Affairs, University of Petroleum and Minerals, Dharhan, Saudi Arabia.

ADMINISTRATION

Local Education Authority continued

SOUTH GLAMORGAN
(Metropolitan Council)
Applications are invited for a post of **CHIEF TECHNICAL EDUCATION OFFICER** in the Technical Education Division. The post is a full-time position, grade 2, with a salary of £10,000 p.a. to £20,000 p.a. depending on experience. The successful candidate will be responsible for the technical education of the district, including the management of technical schools, colleges and training centres. The post holder will also be responsible for the development of technical education in the district. Applications should be sent to the Director of Education, South Glamorgan, 100, Victoria Road, South Shields, Tyne and Wear, NE33 1JH. Closing date: 15th February 1978.

SCOTTISH INSTITUTE OF ADULT EDUCATION
(Metropolitan Council)
Applications are invited for a post of **CHIEF TECHNICAL EDUCATION OFFICER** in the Technical Education Division. The post is a full-time position, grade 2, with a salary of £10,000 p.a. to £20,000 p.a. depending on experience. The successful candidate will be responsible for the technical education of the district, including the management of technical schools, colleges and training centres. The post holder will also be responsible for the development of technical education in the district. Applications should be sent to the Director of Education, Scottish Institute of Adult Education, 100, Victoria Road, South Shields, Tyne and Wear, NE33 1JH. Closing date: 15th February 1978.

WEST SUSSEX
(Metropolitan Council)
Applications are invited for a post of **CHIEF TECHNICAL EDUCATION OFFICER** in the Technical Education Division. The post is a full-time position, grade 2, with a salary of £10,000 p.a. to £20,000 p.a. depending on experience. The successful candidate will be responsible for the technical education of the district, including the management of technical schools, colleges and training centres. The post holder will also be responsible for the development of technical education in the district. Applications should be sent to the Director of Education, West Sussex, 100, Victoria Road, South Shields, Tyne and Wear, NE33 1JH. Closing date: 15th February 1978.

EXETER
(Metropolitan Council)
Applications are invited for a post of **CHIEF TECHNICAL EDUCATION OFFICER** in the Technical Education Division. The post is a full-time position, grade 2, with a salary of £10,000 p.a. to £20,000 p.a. depending on experience. The successful candidate will be responsible for the technical education of the district, including the management of technical schools, colleges and training centres. The post holder will also be responsible for the development of technical education in the district. Applications should be sent to the Director of Education, Exeter, 100, Victoria Road, South Shields, Tyne and Wear, NE33 1JH. Closing date: 15th February 1978.

METROPOLITAN BOROUGH OF STOCKPORT
ASSISTANT EDUCATION OFFICER (BUILDINGS AND RESOURCES)
£5,000-£8,500 plus £250 pay supp.
This is a key post at third-level in the Resources and Planning Department of the Education Division. The post carries responsibility for all capital building programmes, educational supplies, the school meals service, caretaking and cleaning services and a considerable amount of personnel work in the manual sector.

The vacancy arises through the promotion of the present holder. Candidates should be able to offer administrative experience at a senior level and in addition a degree would be advantageous.

Return application form by the 10th February, 1978.

SPECIALIST CAREERS OFFICER (FURTHER EDUCATION)
£3,800-£4,214

Applicants should preferably be experienced Careers Officers who have completed a recognised full-time training course. Will be expected to have a degree and/or equivalent qualification and/or teaching experience available. Removal expenses, disturbance and other allowances available.

Main duties are to give vocational guidance to students. Application form and further details from the Director of Education, Town Hall, Stockport SK1 3XE, to be returned by 8th February, 1978, unless otherwise stated.

SENIOR EDUCATION WELFARE OFFICER

Salary: £5,044-£5,350 inclusive per annum.

Applicants are invited from suitably qualified and experienced persons for the post of Senior Education Welfare Officer in the Schools Section of the Directorate of Education.

The officer appointed will be responsible for leading and coordinating the full range of work undertaken by a team of eight Education Welfare Officers whose duties incorporate school attendance, welfare and employment matters throughout the Borough where there is a school population of 40,000.

Applicants should ideally have considerable experience in the Education Welfare Service and/or hold a recognised qualification. An ability to organise and develop the service to meet present day requirements is essential.

Application forms and further details from Chief Education Officer for Schools, Town Hall, Crayke, Kent DA1 1EN (Tel: Crayford 52820, Ext. 146). Closing date: 30 January, 1978.

Bexley London Borough

COMMUNITY EDUCATION SERVICE

Deputy Warden

Loughton, Valley Way Club
Applications are invited from suitably qualified teachers/Youth leaders for the above post. The successful candidate will be required to assist the Warden in the Valley Way Club and also other centres in the Loughton area.

Salary: J.N.C. Scale 2 for Youth Leaders £2712-£3537, plus £312 and Stage 2 Supplements, plus £150 D.F.A. Graduate Allowances also payable where applicable.

Application form and further particulars from the County Education Officer, Community Education Branch, Thredneedle House, Market Road, Chelmsford.

Essex County Council

NORTH YORKSHIRE COUNTY COUNCIL

PROFESSIONAL ASSISTANT

Salary Scale 601/2 £4239-£4992, plus £520.66 p.a. supplement

This post (which arises from the promotion of the present occupant to a senior post with another Authority) will provide an excellent opportunity for a person who is an Honorary Graduate with successful teaching experience to enter educational administration. Duties will be associated with the administration of education generally and probably in the first instance will involve work on forward planning and special assignments for the County Education Officer.

Applications by letter to County Education Officer, County Hall, Northallerton, North Yorkshire DL7 6AE, from whom details of the post are available. Closing date Tuesday, 31st January, 1978.

NATIONAL ASSOCIATION OF TEACHERS IN FURTHER & HIGHER EDUCATION (NATFHE)

requires as soon as possible an **EDUCATION SECRETARY**

to take charge, under the General Secretary, of the Association's Educational policy work. Salary, Grade VI Head of Department (Bursary F.E.) (at present £8,680 x 4 to £9,495 p.a. gross).

Further particulars from Mr. B. Brady, NATFHE, Hamilton House, Mableton Place, London WC1H 9BH (tel. 01-387 6806), to whom applications (no forms) should be returned not later than the

31st January, 1978.

SCHOOLS COUNCIL

ASSOCIATION FOR SCIENCE EDUCATION

Studies in Decision Making for Science Education

Appointment of Part-time Director and two Project Officers for the project, for which the Association for Science Education is the grant holder.

The project, which follows directly from the work of the Education (Research) Committee of the Association, will aim to produce a series of case studies illustrating the various approaches to the organisation of science teaching in our schools and describing the factors which influence science teachers when faced with selecting the content of their science courses.

It is hoped that the Part-time Director will take up the post in May, 1978, and the two Project Officers in September, 1978. It is anticipated that the project staff will be based in their home areas.

Further details may be obtained from the General Secretary, ASE, College Lane, Hatfield, Herts, AL10 9AA (telephone Hatfield 87411). Closing date for applications: 3rd February, 1978. Project Director: 3rd March, 1978.

EDUCATION DEPARTMENT
SUPERINTENDENT EDUCATION
WELFARE OFFICER (£5,209-£5,770)
RE-ADVERTISEMENT

Applications are invited from suitably qualified persons for the above post. Good experience in educational administration is essential, particularly in the field of education welfare.

The Authority has a scheme of assistance. In the case of an appointee from outside the Borough, towards the cost of removal expenses, lodging allowance etc.

Forms of application and further particulars (s.e.s.) may be obtained from the Director of Education at the address shown below to whom applications should be forwarded so as to arrive not later than February 1, 1978.

Town Hall & Civic Centre, L. A. Bloom, Sunderland SR2 7DN, Chief Executive.

Borough of Sunderland

LONDON BOROUGH OF CROYDON
APPOINTMENT OF SPECIALIST INSPECTOR WITH RESPONSIBILITY FOR MUSIC

Applications are invited for the above post, from 1st September 1978. Applicants should be graduates or hold a relevant qualification and should have held a senior post(s) in schools or colleges. Experience in the Advisory Service is an additional recommendation.

The successful candidate will serve with the present General Inspector who has overall responsibility for Music, Safety, Southern Range—Head Teacher Group B, £6,489-£7,113 plus supplementary of £312 (April 1978) £169 (April 1977) and London Allowance of £297. A car allowance is payable.

Further particulars and application forms obtainable from the Director of Education, Taberna House, Park Lane, Croydon, Surrey CR9 1TP.

Closing date Friday, 3rd February, 1978.

METROPOLITAN BOROUGH OF ROTHERHAM
Department of Education

ED.8 PRINCIPAL ASSISTANT (PRIMARY/NURSERY EDUCATION)

Salary Scale: P.O.2(3), £2,225-£2,808 + supps. £220 p.a. Required to work closely with the Assistant Director (Primary Education) in the overall responsibility for the administration of primary and nursery schools, in close cooperation with other sections of the Department, and will be specially involved in the planning of schools. Applications are invited from experienced teachers who seek a career in education administration or from those already working in local authority education departments who wish to vary their experience. Casual user car allowance. Assisted car purchase scheme.

Closing Date: 31st January, 1978.

Application forms and further details available from the Principal Appointments Officer, Council Office, Grove Road, Moorgate, Rotherham S80 2ES. Telephone: Rotherham 83211, extn. 28.

B. W. Ellis, Director of Personnel Resources.

Metropolitan Borough of WIRRAL

TEMPORARY CAREERS OFFICERS

£3,395-£4,214 (basic salary, inclusive of supplements)

One post is for specialist work with unemployed young people, the other for general Careers Service duties. Applicants should preferably be trained or experienced Careers Officers. The appointments will run until September, 1978.

Further details and application forms from the Director of Education, Municipal Offices, Cleveland Street, Birkenhead, Merseyside (telephone 051-647 7020 ext. 118) returnable by 3rd February.

ADMINISTRATION General continued

SURREY
RECRUITMENT OFFICER

Young man or woman required for recruitment office work with physically handicapped persons. The post involves a number of a multi-disciplinary team in the recruitment of young people with physical disabilities and training of staff. The postholder will be responsible for the recruitment of young people with physical disabilities and training of staff. The postholder will be responsible for the recruitment of young people with physical disabilities and training of staff.

Applications should be sent to the Director of Education, Surrey County Council, Guildford, Surrey GU1 1AA.

Child Care

WALSLEY
CHILD CARE OFFICER

Applications are invited for the above post, from 1st September 1978. Applicants should be graduates or hold a relevant qualification and should have held a senior post(s) in schools or colleges. Experience in the Advisory Service is an additional recommendation.

The successful candidate will serve with the present General Inspector who has overall responsibility for Music, Safety, Southern Range—Head Teacher Group B, £6,489-£7,113 plus supplementary of £312 (April 1978) £169 (April 1977) and London Allowance of £297. A car allowance is payable.

Further particulars and application forms obtainable from the Director of Education, Taberna House, Park Lane, Croydon, Surrey CR9 1TP.

Closing date Friday, 3rd February, 1978.

Educational Psychologists

KENT
EDUCATIONAL PSYCHOLOGIST

Applications are invited for the above post, from 1st September 1978. Applicants should be graduates or hold a relevant qualification and should have held a senior post(s) in schools or colleges. Experience in the Advisory Service is an additional recommendation.

The successful candidate will serve with the present General Inspector who has overall responsibility for Music, Safety, Southern Range—Head Teacher Group B, £6,489-£7,113 plus supplementary of £312 (April 1978) £169 (April 1977) and London Allowance of £297. A car allowance is payable.

Further particulars and application forms obtainable from the Director of Education, Taberna House, Park Lane, Croydon, Surrey CR9 1TP.

Closing date Friday, 3rd February, 1978.

Examiners

ASSOCIATED LANCASHIRE SCHOOLS EXAMINING BOARD

Candidates for Secondary Education and Joint 16+ Examinations. Applications are invited for the following vacancies:

ASSOCIATED LANCASHIRE SCHOOLS EXAMINING BOARD

Candidates for Secondary Education and Joint 16+ Examinations. Applications are invited for the following vacancies:

ANCILLARY SERVICES

NORWICH
RECRUITMENT OFFICER

Applications are invited for the above post, from 1st September 1978. Applicants should be graduates or hold a relevant qualification and should have held a senior post(s) in schools or colleges. Experience in the Advisory Service is an additional recommendation.

The successful candidate will serve with the present General Inspector who has overall responsibility for Music, Safety, Southern Range—Head Teacher Group B, £6,489-£7,113 plus supplementary of £312 (April 1978) £169 (April 1977) and London Allowance of £297. A car allowance is payable.

Further particulars and application forms obtainable from the Director of Education, Taberna House, Park Lane, Croydon, Surrey CR9 1TP.

Closing date Friday, 3rd February, 1978.

Metropolitan Regional Examinations Board

WALSLEY
CHILD CARE OFFICER

Applications are invited for the above post, from 1st September 1978. Applicants should be graduates or hold a relevant qualification and should have held a senior post(s) in schools or colleges. Experience in the Advisory Service is an additional recommendation.

The successful candidate will serve with the present General Inspector who has overall responsibility for Music, Safety, Southern Range—Head Teacher Group B, £6,489-£7,113 plus supplementary of £312 (April 1978) £169 (April 1977) and London Allowance of £297. A car allowance is payable.

Further particulars and application forms obtainable from the Director of Education, Taberna House, Park Lane, Croydon, Surrey CR9 1TP.

Closing date Friday, 3rd February, 1978.

Education Development Officer

WALSLEY
CHILD CARE OFFICER

Applications are invited for the above post, from 1st September 1978. Applicants should be graduates or hold a relevant qualification and should have held a senior post(s) in schools or colleges. Experience in the Advisory Service is an additional recommendation.

The successful candidate will serve with the present General Inspector who has overall responsibility for Music, Safety, Southern Range—Head Teacher Group B, £6,489-£7,113 plus supplementary of £312 (April 1978) £169 (April 1977) and London Allowance of £297. A car allowance is payable.

Further particulars and application forms obtainable from the Director of Education, Taberna House, Park Lane, Croydon, Surrey CR9 1TP.

Closing date Friday, 3rd February, 1978.

Examiners

ASSOCIATED LANCASHIRE SCHOOLS EXAMINING BOARD

Candidates for Secondary Education and Joint 16+ Examinations. Applications are invited for the following vacancies:

ASSOCIATED LANCASHIRE SCHOOLS EXAMINING BOARD

Candidates for Secondary Education and Joint 16+ Examinations. Applications are invited for the following vacancies:

MISCELLANEOUS

LONDON
RECRUITMENT OFFICER

Applications are invited for the above post, from 1st September 1978. Applicants should be graduates or hold a relevant qualification and should have held a senior post(s) in schools or colleges. Experience in the Advisory Service is an additional recommendation.

The successful candidate will serve with the present General Inspector who has overall responsibility for Music, Safety, Southern Range—Head Teacher Group B, £6,489-£7,113 plus supplementary of £312 (April 1978) £169 (April 1977) and London Allowance of £297. A car allowance is payable.

Further particulars and application forms obtainable from the Director of Education, Taberna House, Park Lane, Croydon, Surrey CR9 1TP.

Closing date Friday, 3rd February, 1978.

Education Development Officer

WALSLEY
CHILD CARE OFFICER

Applications are invited for the above post, from 1st September 1978. Applicants should be graduates or hold a relevant qualification and should have held a senior post(s) in schools or colleges. Experience in the Advisory Service is an additional recommendation.

The successful candidate will serve with the present General Inspector who has overall responsibility for Music, Safety, Southern Range—Head Teacher Group B, £6,489-£7,113 plus supplementary of £312 (April 1978) £169 (April 1977) and London Allowance of £297. A car allowance is payable.

Further particulars and application forms obtainable from the Director of Education, Taberna House, Park Lane, Croydon, Surrey CR9 1TP.

Closing date Friday, 3rd February, 1978.

Education Development Officer

WALSLEY
CHILD CARE OFFICER

Applications are invited for the above post, from 1st September 1978. Applicants should be graduates or hold a relevant qualification and should have held a senior post(s) in schools or colleges. Experience in the Advisory Service is an additional recommendation.

The successful candidate will serve with the present General Inspector who has overall responsibility for Music, Safety, Southern Range—Head Teacher Group B, £6,489-£7,113 plus supplementary of £312 (April 1978) £169 (April 1977) and London Allowance of £297. A car allowance is payable.

Further particulars and application forms obtainable from the Director of Education, Taberna House, Park Lane, Croydon, Surrey CR9 1TP.

Closing date Friday, 3rd February, 1978.

Examiners

ASSOCIATED LANCASHIRE SCHOOLS EXAMINING BOARD

Candidates for Secondary Education and Joint 16+ Examinations. Applications are invited for the following vacancies:

ASSOCIATED LANCASHIRE SCHOOLS EXAMINING BOARD

Candidates for Secondary Education and Joint 16+ Examinations. Applications are invited for the following vacancies:

MISCELLANEOUS

LONDON
RECRUITMENT OFFICER

Applications are invited for the above post, from 1st September 1978. Applicants should be graduates or hold a relevant qualification and should have held a senior post(s) in schools or colleges. Experience in the Advisory Service is an additional recommendation.

The successful candidate will serve with the present General Inspector who has overall responsibility for Music, Safety, Southern Range—Head Teacher Group B, £6,489-£7,113 plus supplementary of £312 (April 1978) £169 (April 1977) and London Allowance of £297. A car allowance is payable.

Further particulars and application forms obtainable from the Director of Education, Taberna House, Park Lane, Croydon, Surrey CR9 1TP.

Closing date Friday, 3rd February, 1978.

Education Development Officer

WALSLEY
CHILD CARE OFFICER

Applications are invited for the above post, from 1st September 1978. Applicants should be graduates or hold a relevant qualification and should have held a senior post(s) in schools or colleges. Experience in the Advisory Service is an additional recommendation.

The successful candidate will serve with the present General Inspector who has overall responsibility for Music, Safety, Southern Range—Head Teacher Group B, £6,489-£7,113 plus supplementary of £312 (April 1978) £169 (April 1977) and London Allowance of £297. A car allowance is payable.

Further particulars and application forms obtainable from the Director of Education, Taberna House, Park Lane, Croydon, Surrey CR9 1TP.

Closing date Friday, 3rd February, 1978.

Education Development Officer

WALSLEY
CHILD CARE OFFICER

Applications are invited for the above post, from 1st September 1978. Applicants should be graduates or hold a relevant qualification and should have held a senior post(s) in schools or colleges. Experience in the Advisory Service is an additional recommendation.

The successful candidate will serve with the present General Inspector who has overall responsibility for Music, Safety, Southern Range—Head Teacher Group B, £6,489-£7,113 plus supplementary of £312 (April 1978) £169 (April 1977) and London Allowance of £297. A car allowance is payable.

Further particulars and application forms obtainable from the Director of Education, Taberna House, Park Lane, Croydon, Surrey CR9 1TP.

Closing date Friday, 3rd February, 1978.

Examiners

ASSOCIATED LANCASHIRE SCHOOLS EXAMINING BOARD

Candidates for Secondary Education and Joint 16+ Examinations. Applications are invited for the following vacancies:

ASSOCIATED LANCASHIRE SCHOOLS EXAMINING BOARD

Candidates for Secondary Education and Joint 16+ Examinations. Applications are invited for the following vacancies:

MISCELLANEOUS

LONDON
RECRUITMENT OFFICER

Applications are invited for the above post, from 1st September 1978. Applicants should be graduates or hold a relevant qualification and should have held a senior post(s) in schools or colleges. Experience in the Advisory Service is an additional recommendation.

The successful candidate will serve with the present General Inspector who has overall responsibility for Music, Safety, Southern Range—Head Teacher Group B, £6,489-£7,113 plus supplementary of £312 (April 1978) £169 (April 1977) and London Allowance of £297. A car allowance is payable.

Further particulars and application forms obtainable from the Director of Education, Taberna House, Park Lane, Croydon, Surrey CR9 1TP.

Closing date Friday, 3rd February, 1978.

Education Development Officer

WALSLEY
CHILD CARE OFFICER

Applications are invited for the above post, from 1st September 1978. Applicants should be graduates or hold a relevant qualification and should have held a senior post(s) in schools or colleges. Experience in the Advisory Service is an additional recommendation.

The successful candidate will serve with the present General Inspector who has overall responsibility for Music, Safety, Southern Range—Head Teacher Group B, £6,489-£7,113 plus supplementary of £312 (April 1978) £169 (April 1977) and London Allowance of £297. A car allowance is payable.

Further particulars and application forms obtainable from the Director of Education, Taberna House, Park Lane, Croydon, Surrey CR9 1TP.

Closing date Friday, 3rd February, 1978.

Education Development Officer

WALSLEY
CHILD CARE OFFICER

Applications are invited for the above post, from 1st September 1978. Applicants should be graduates or hold a relevant qualification and should have held a senior post(s) in schools or colleges. Experience in the Advisory Service is an additional recommendation.

The successful candidate will serve with the present General Inspector who has overall responsibility for Music, Safety, Southern Range—Head Teacher Group B, £6,489-£7,113 plus supplementary of £312 (April 1978) £169 (April 1977) and London Allowance of £297. A car allowance is payable.

Further particulars and application forms obtainable from the Director of Education, Taberna House, Park Lane, Croydon, Surrey CR9 1TP.

Closing date Friday, 3rd February, 1978.

Examiners

ASSOCIATED LANCASHIRE SCHOOLS EXAMINING BOARD

Candidates for Secondary Education and Joint 16+ Examinations. Applications are invited for the following vacancies:

ASSOCIATED LANCASHIRE SCHOOLS EXAMINING BOARD

Candidates for Secondary Education and Joint 16+ Examinations. Applications are invited for the following vacancies:

MISCELLANEOUS

LONDON
RECRUITMENT OFFICER

Applications are invited for the above post, from 1st September 1978. Applicants should be graduates or hold a relevant qualification and should have held a senior post(s) in schools or colleges. Experience in the Advisory Service is an additional recommendation.

The successful candidate will serve with the present General Inspector who has overall responsibility for Music, Safety, Southern Range—Head Teacher Group B, £6,489-£7,113 plus supplementary of £312 (April 1978) £169 (April 1977) and London Allowance of £297. A car allowance is payable.

Further particulars and application forms obtainable from the Director of Education, Taberna House, Park Lane, Croydon, Surrey CR9 1TP.

Closing date Friday, 3rd February, 1978.

Education Development Officer

WALSLEY
CHILD CARE OFFICER

Applications are invited for the above post, from 1st September 1978. Applicants should be graduates or hold a relevant qualification and should have held a senior post(s) in schools or colleges. Experience in the Advisory Service is an additional recommendation.

The successful candidate will serve with the present General Inspector who has overall responsibility for Music, Safety, Southern Range—Head Teacher Group B, £6,489-£7,113 plus supplementary of £312 (April 1978) £169 (April 1977) and London Allowance of £297. A car allowance is payable.

Further particulars and application forms obtainable from the Director of Education, Taberna House, Park Lane, Croydon, Surrey CR9 1TP.

Closing date Friday, 3rd February, 1978.

Education Development Officer

WALSLEY
CHILD CARE OFFICER

Applications are invited for the above post, from 1st September 1978. Applicants should be graduates or hold a relevant qualification and should have held a senior post(s) in schools or colleges. Experience in the Advisory Service is an additional recommendation.

The successful candidate will serve with the present General Inspector who has overall responsibility for Music, Safety, Southern Range—Head Teacher Group B, £6,489-£7,113 plus supplementary of £312 (April 1978) £169 (April 1977) and London Allowance of £297. A car allowance is payable.

Further particulars and application forms obtainable from the Director of Education, Taberna House, Park Lane, Croydon, Surrey CR9 1TP.

Closing date Friday, 3rd February, 1978.

Examiners

ASSOCIATED LANCASHIRE SCHOOLS EXAMINING BOARD

Candidates for Secondary Education and Joint 16+ Examinations. Applications are invited for the following vacancies:

ASSOCIATED LANCASHIRE SCHOOLS EXAMINING BOARD

Candidates for Secondary Education and Joint 16+ Examinations. Applications are invited for the following vacancies:

MISCELLANEOUS

LONDON
RECRUITMENT OFFICER

Applications are invited for the above post, from 1st September 1978. Applicants should be graduates or hold a relevant qualification and should have held a senior post(s) in schools or colleges. Experience in the Advisory Service is an additional recommendation.

The successful candidate will serve with the present General Inspector who has overall responsibility for Music, Safety, Southern Range—Head Teacher Group B, £6,489-£7,113 plus supplementary of £312 (April 1978) £169 (April 1977) and London Allowance of £297. A car allowance is payable.

Further particulars and application forms obtainable from the Director of Education, Taberna House, Park Lane, Croydon, Surrey CR9 1TP.

Closing date Friday, 3rd February, 1978.

Education Development Officer

WALSLEY
CHILD CARE OFFICER

Applications are invited for the above post, from 1st September 1978. Applicants should be graduates or hold a relevant qualification and should have held a senior post(s) in schools or colleges. Experience in the Advisory Service is an additional recommendation.

The successful candidate will serve with the present General Inspector who has overall responsibility for Music, Safety, Southern Range—Head Teacher Group B, £6,489-£7,113 plus supplementary of £312 (April 1978) £169 (April 1977) and London Allowance of £297. A car allowance is payable.

Further particulars and application forms obtainable from the Director of Education, Taberna House, Park Lane, Croydon, Surrey CR9 1TP.

Closing date Friday, 3rd February, 1978.

Education Development Officer

WALSLEY
CHILD CARE OFFICER

Applications are invited for the above post, from 1st September 1978. Applicants should be graduates or hold a relevant qualification and should have held a senior post(s) in schools or colleges. Experience in the Advisory Service is an additional recommendation.

The successful candidate will serve with the present General Inspector who has overall responsibility for Music, Safety, Southern Range—Head Teacher Group B, £6,489-£7,113 plus supplementary of £312 (April 1978) £169 (April 1977) and London Allowance of £297. A car allowance is payable.

Further particulars and application forms obtainable from the Director of Education, Taberna House, Park Lane, Croydon, Surrey CR9 1TP.

Closing date Friday, 3rd February, 1978.

Examiners

ASSOCIATED LANCASHIRE SCHOOLS EXAMINING BOARD

Candidates for Secondary Education and Joint 16+ Examinations. Applications are invited for the following vacancies:

ASSOCIATED LANCASHIRE SCHOOLS EXAMINING BOARD

Candidates for Secondary Education and Joint 16+ Examinations. Applications are invited for the following vacancies:

MISCELLANEOUS

LONDON
RECRUITMENT OFFICER

Applications are invited for the above post, from 1st September 1978. Applicants should be graduates or hold a relevant qualification and should have held a senior post(s) in schools or colleges. Experience in the Advisory Service is an additional recommendation.

The successful candidate will serve with the present General Inspector who has overall responsibility for Music, Safety, Southern Range—Head Teacher Group B, £6,489-£7,113 plus supplementary of £312 (April 1978) £169 (April 1977) and London Allowance of £297. A car allowance is payable.

Further particulars and application forms obtainable from the Director of Education, Taberna House, Park Lane, Croydon, Surrey CR9 1TP.

Closing date Friday, 3rd February, 1978.

Education Development Officer

WALSLEY
CHILD CARE OFFICER

Applications are invited for the above post, from 1st September 1978. Applicants should be graduates or hold a relevant qualification and should have held a senior post(s) in schools or colleges. Experience in the Advisory Service is an additional recommendation.

The successful candidate will serve with the present General Inspector who has overall responsibility for Music, Safety, Southern Range—Head Teacher Group B, £6,489-£7,113 plus supplementary of £312 (April 1978) £169 (April 1977) and London Allowance of £297. A car allowance is payable.

Further particulars and application forms obtainable from the Director of Education, Taberna House, Park Lane, Croydon, Surrey CR9 1TP.

Closing date Friday, 3rd February, 1978.

Education Development Officer

WALSLEY
CHILD CARE OFFICER

Applications are invited for the above post, from 1st September 1978. Applicants should be graduates or hold a relevant qualification and should have held a senior post(s) in schools or colleges. Experience in the Advisory Service is an additional recommendation.

The successful candidate will serve with the present General Inspector who has overall responsibility for Music, Safety, Southern Range—Head Teacher Group B, £6,489-£7,113 plus supplementary of £312 (April 1978) £169 (April 1977) and London Allowance of £297. A car allowance is payable.

Further particulars and application forms obtainable from the Director of Education, Taberna House, Park Lane, Croydon, Surrey CR9 1TP.

Closing date Friday, 3rd February, 1978.

Examiners

ASSOCIATED LANCASHIRE SCHOOLS EXAMINING BOARD

Candidates for Secondary Education and Joint 16+ Examinations. Applications are invited for the following vacancies:

ASSOCIATED LANCASHIRE SCHOOLS EXAMINING BOARD

Candidates for Secondary Education and Joint 16+ Examinations. Applications are invited for the following vacancies:

MISCELLANEOUS

LONDON
RECRUITMENT OFFICER

Applications are invited for the above post, from 1st September 1978. Applicants should be graduates or hold a relevant qualification and should have held a senior post(s) in schools or colleges. Experience in the Advisory Service is an additional recommendation.

The successful candidate will serve with the present General Inspector who has overall responsibility for Music, Safety, Southern Range—Head Teacher Group B, £6,489-£7,113 plus supplementary of £312 (April 1978) £169 (April 1977) and London Allowance of £297. A car allowance is payable.

Further particulars and application forms obtainable from the Director of Education, Taberna House, Park Lane, Croydon, Surrey CR9 1TP.

Closing date Friday, 3rd February, 1978.

Education Development Officer

WALSLEY
CHILD CARE OFFICER

Applications are invited for the above post, from 1st September 1978. Applicants should be graduates or hold a relevant qualification and should have held a senior post(s) in schools or colleges. Experience in the Advisory Service is an additional recommendation.

The successful candidate will serve with the present General Inspector who has overall responsibility for Music, Safety, Southern Range—Head Teacher Group B, £6,489-£7,113 plus supplementary of £312 (April 1978) £169 (April 1977) and London Allowance of £297. A car allowance is payable.

Further particulars and application forms obtainable from the Director of Education, Taberna House, Park Lane, Croydon, Surrey CR9 1TP.

Closing date Friday, 3rd February, 1978.

Education Development Officer

WALSLEY
CHILD CARE OFFICER

Applications are invited for the above post, from 1st September 1978. Applicants should be graduates or hold a relevant qualification and should have held a senior post(s) in schools or colleges. Experience in the Advisory Service is an additional recommendation.

The successful candidate will serve with the present General Inspector who has overall responsibility for Music, Safety, Southern Range—Head Teacher Group B, £6,489-£7,113 plus supplementary of £312 (April 1978) £169 (April 1977) and London Allowance of £297. A car allowance is payable.

Further particulars and application forms obtainable from the Director of Education, Taberna House, Park Lane, Croydon, Surrey CR9 1TP.

Closing date Friday, 3rd February, 1978.

Examiners

ASSOCIATED LANCASHIRE SCHOOLS EXAMINING BOARD

Candidates for Secondary Education and Joint 16+ Examinations. Applications are invited for the following vacancies:

ASSOCIATED LANCASHIRE SCHOOLS EXAMINING BOARD

Candidates for Secondary Education and Joint 16+ Examinations. Applications are invited for the following vacancies:

LECTURER-TUTORS

Three or four tutors are required to participate in a workshop/field studies project with American savannah-year-olds. The tutors will live-in with students from March 24-April 20 in London and New York and be responsible for helping them to develop and articulate responses to a series of seminars, talks, field visits, and critical and social activities. The project is an exciting one and offers considerable scope for initiative and curriculum experiment as well as for personal and academic development. Those with a background in education and a willingness to assist closely to young people, and an ability to drive a motor car are essential.

Salary: £300.00 in addition to accommodation and living expenses during the course.

For further details, send a curriculum vitae, names of two referees, and S.A.E. to: JCA Educational Centre, 23 Vincent Terrace, London N1 8HN. Closing Date: 7th February, 1978.

SOCIAL SERVICES DEPARTMENT
CARE AND TREATMENT IN THE NORTH EAST

Sunderland is to open a locally based purpose-built inpatient care unit for children. It will provide facilities for severely disturbed children and will operate a progressive concept by requiring its staff to combine individual care and treatment programmes with family and community work. These objectives are to be aided by high staff ratios and professional supportive services. It is believed that this provision will offer a unique opportunity to committed child care professionals to carry out purposeful measures for the assistance of those children who are admitted with the aim of helping them to make a better adjustment within themselves and to the community.

OFFICER IN CHARGE
£2,457-£2,853 per annum

To take up duties as soon as possible and be responsible for the overall direction and management of the unit with the ability to specify appropriate forms of treatment. He or she should have proven successful experience in the management of a residential unit. Persons having practice in a suitable range of experiences are invited to apply but a social work background is essential.

This post is residential and the separate accommodation provided is within the grounds, consisting of a three-bedroomed house with garage.

TEACHING POSTS

(a) SENIOR TEACHER (£4,542-£6,158) Burnham Scale 2 plus former approved schools and extraneous duties allowances.

(b) TEACHER £4,140-£5,682) Burnham Scale 1 plus former approved schools and extraneous duties allowances.

It is anticipated that most children on arrival will require educational facilities on the premises but flexible arrangements will allow children to undergo outside schooling when ready to do so.

Applicants must be suitably qualified, experienced and possess remedial skills. The groups will be of varied age range and ability. Applications are invited from persons who can offer skills within some of the following areas: crafts, music, general teaching, mathematics at a secondary level and outdoor activities. Aspects of teaching and social care are seen as being equally integrated. Opportunities to create and carry out a wide range of extraneous duties.

Informal enquiries by telephone to Ruth Latham, Sunderland 78181 Ext. 218 between 1.00 p.m. and 2.00 p.m. daily. Full information and application forms obtainable from Social Services Department, at the address given below. Closing date for the return of completed application forms is 8th February 1978.

TOWN HALL & CIVIC CENTRE, L. A. BLOOM, SUNDERLAND, SR2 7DN, CHIEF EXECUTIVE

Borough of Sunderland

WANTED

Trainee Programmers/Operators

O/A LEVEL, ONC OR CITY AND GUILDS?

The UK training division of Control Data who manufacture the world's most powerful young computer wishes to meet suitable young people between the ages of 18-31 to train as Computer Programmers/Operators with a view to subsequent employment at various locations. This is an opportunity to be trained in computer skills by a leading computer manufacturer for an occupation and industry which offers progressive salaries, really interesting work and excellent career prospects. Spend the evening with us and investigate our training-entry scheme in detail. Find out whether you would qualify for support under TOPS*.

Call 01-637 2171 and ask to be connected to

PROGRAM 5T

*TOPS—The National Training Opportunities Scheme under which training cost and personal subsistence allowances are paid to suitable candidates whilst undergoing training which is designed to lead to employment.

Social Education Officer
SOCIAL EDUCATION UNIT
Salary up to £5,513 p.a.

A Unique Development in Social Services

This Social Education Unit in Coventry's Social Services Department plays an important part in improving public understanding of social problems and increasing public awareness and sensitivity to the needs of the handicapped and deprived.

Projects are developed through the establishment of good relationships with the media, the staging of exhibitions and other displays, through public meetings and the design of posters, leaflets and advertising material.

A Social Education Officer is required to act as head of the unit (the previous holder having been appointed as Director of a National Voluntary Organisation). The person appointed must have the ability to communicate orally and in print. Qualifications in social work, social studies, journalism, education or public relations would be an advantage, and the candidate's salary will reflect this within the range Senior Officers 1 or 2 (£4,760 to £5,513).

Imagination and the ability to develop this exciting, preventive service is vital. Knowledge of and experience in the Social Services is desirable.

A car allowance is payable and assistance with housing and removal expenses can be arranged.

Closing date for the return of completed applications is 6th February, 1978.

Application forms and further particulars from Director of Social Services, Council Office, Coventry.

coventry

